User Manual

Product Name: Infrared Acoustic Imager

Thank you for purchasing this product. Please read this instruction manual before use and keep it carefully for future reference.

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1. Important

This manual is a general manual for this series of products, which means that the specific model product you receive may be different from the manual pictures. Please refer to the actual product received .

This manual is compiled for the convenience of users to use and understand our company's products. We will do our best to ensure the accuracy of the contents of this manual, but we cannot guarantee the completeness of the contents of this manual. Because our products have been continuously updated and upgraded, our company reserves the right to modify them at any time without prior notice.

2. Storage and transportation

Storage: The packaged products should be stored in a well-ventilated and clean room with a temperature between -40℃ and 70℃, a relative humidity not exceeding 95%, no condensation and no corrosive gases.

Transportation: During transportation, the product should be protected from rain, water immersion, and inversion. It should not be subjected to severe vibration and impact. It should be handled with care and is strictly prohibited to drop it.

3. Precautions

3.1. Danger

1) Please charge the battery according to the quick operation guide and follow the charging steps and precautions. Improper charging may cause the battery to heat up, damage or even cause personal injury;

2) Do not try to open or disassemble the battery at any time. If the battery leaks and liquid enters the eyes, rinse the eyes immediately with clean water and seek medical care.

3.2. warn

1) Please keep the device as stable as possible when using it and avoid violent shaking;

use or store the device in an environment that exceeds the permitted operating temperature or storage temperature of the device ;

3) Do not point the device directly at high-intensity heat radiation sources, such as the sun, lasers, spot welders, etc. , to avoid damage to the device ;

4) Do not knock , throw or vibrate the device and accessories to avoid damage;

5) Please do not disassemble the machine by yourself to avoid damage to the equipment and loss of warranty rights;

6) Do not wipe the device or cables with solvent liquids to avoid damaging the device ;

7) Do not use the device in an environment that exceeds the operating temperature to avoid damage to the device ;

8) Please follow the following measures when wiping this device:

- Non-optical surface: wipe with a clean, soft cloth;
- Optical surface: wipe carefully with professional lens paper;

9) Do not place the battery in a high temperature environment or near high temperature objects;

1 0) Do not expose the battery to moisture or water.

3.3. Notice

1) Do not expose the device to dusty, humid, or corrosive environments;

2) When the device is not in use, please place it and all accessories in a dedicated packaging box;

3) When the device is not used for a long time, it should be recharged every 3 to 6 months to maintain the activity of the battery;

4) Do not use the SD card of this device for other purposes.

5) The batteries involved in this device are intended to be removed or replaced only by authorised professional personnel. End-users must not remove the battery themselves, as this may impair the waterproof/dustproof performance and cause safety hazards.

this device for other purposes;

4. Product Introduction

The infrared acoustic wave imager is a detection device . It adopts a modular plug-in design. By inserting different modules, it can achieve multiple uses . It integrates infrared, acoustic, and ultraviolet analysis. It has both infrared temperature measurement and analysis functions and partial discharge detection, gas leakage detection and other functions.

4.1. Appearance

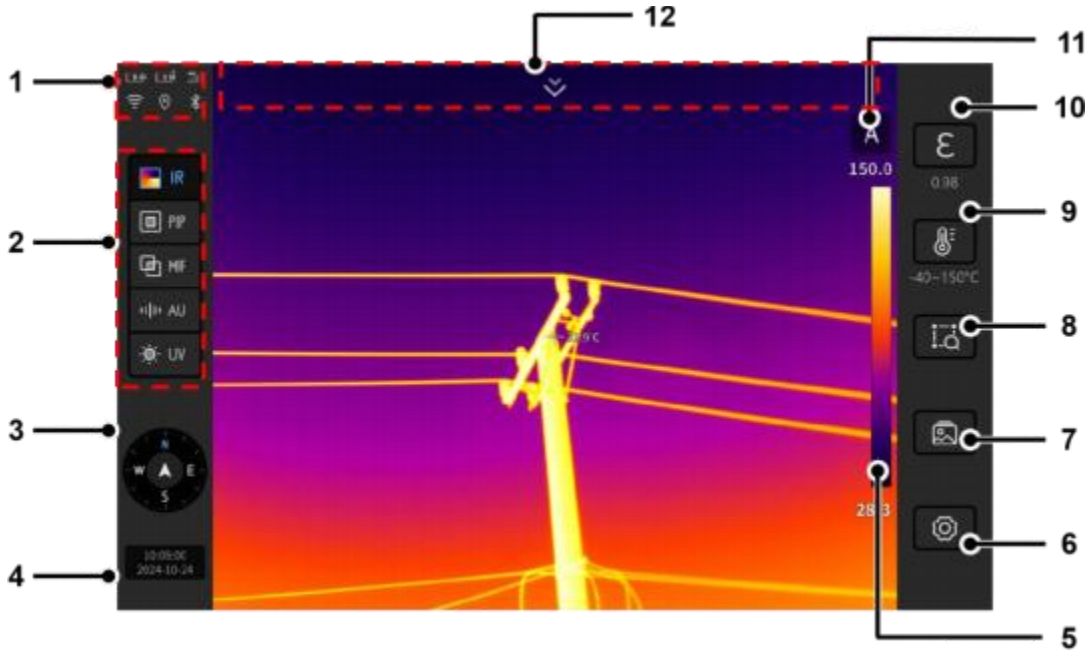




1	Laser Key	4	Assistive buttons	7	Battery compartment
2	Camera button	5	SD card slot, Type-C interface	8	Power button
3	Lens lock	6	Fixed bracket		

4.2. Main interface

4.2.1. Infrared



(1) Status bar : displays battery power, WiFi, 4G network (supported by some models) , positioning status, etc .

(2) Image mode : supports infrared (IR) , image fusion (MIF) , picture in picture (PIP), and audio and video (AU) .

(3) Compass: indicates direction .

(4) Time and date : Display the device time and date .

(5) Color Ribbon: Set the color ribbon .

(6) Settings: Enter the device system settings.

(7) Gallery: Enter the device gallery.

(8) Temperature measurement parameter settings: add/modify/delete analysis objects, set isotherms, analyze temperature differences; set relative humidity, distance, atmospheric transmittance and other parameters .

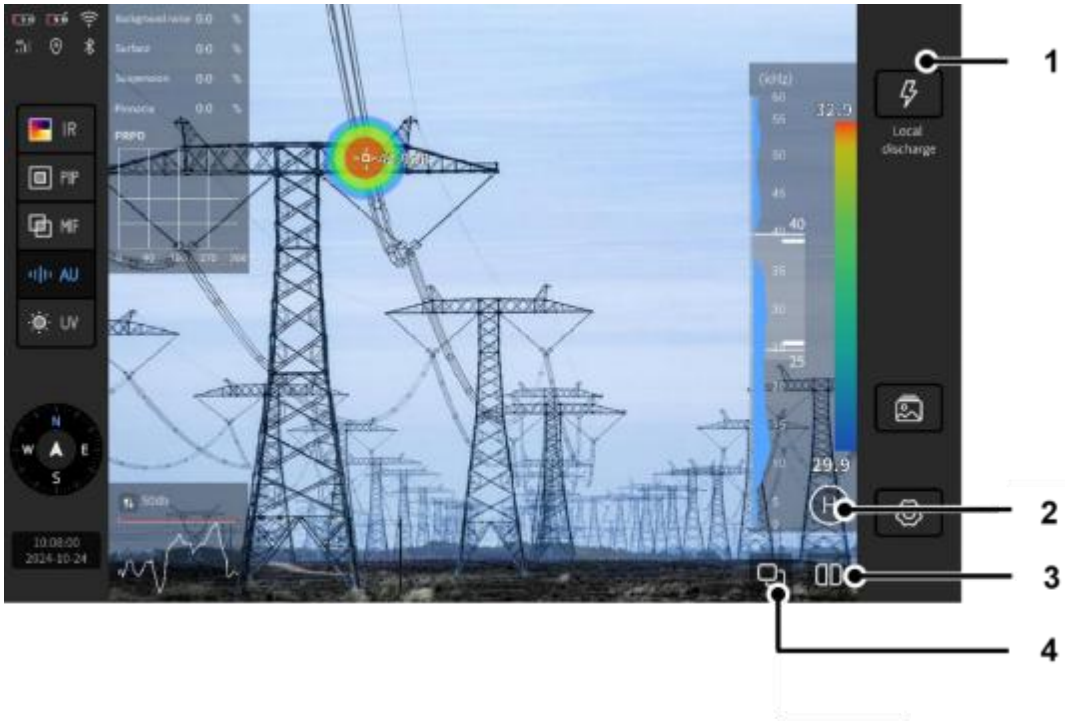
(9) Temperature measurement range: Set the temperature measurement range .

(10) Emissivity: Set the emissivity value .

(11) LevelSpan: supports automatic mode (A) , manual mode (M) , and semi-automatic mode (S) .

(12) Quick Settings: Supports WiFi, Bluetooth, lighting and other settings .

4.2.2. Audio and Video



(1) Detection mode, switching mode, including partial discharge, leakage, mechanical, and can set audio and video parameters.

(2) Sound wave frequency band, switching frequency band, including low (L), medium (M), and high (H) frequency bands.

(3) Split screen, switch audio-visual-infrared split screen observation.

(4) Fusion, switch to audio-visual-infrared fusion observation.

4.2.3. Gallery



Click  to enter the gallery, which supports operations such as viewing image information, analyzing images, and deleting.

icon	Functional Description
	Return to previous level
	View image details
	Analyze pictures, such as adding analysis objects, setting temperature measurement parameters, modifying isotherms, etc.
	Add text annotation
	Add audio notes
	Add photo annotations
	Add Scribble Annotation

	Save the image
	Modify the image name
	Bluetooth image transfer, transfer images to the local album of the mobile phone or App
	Generate PDF report
	Add pictures to the specified album folder
	Upload to cloud photo album
	Cut to SD card or local storage
	delete

4.2.4. Quick Settings



Swipe down from the top of the screen to display quick settings, including WiFi, Bluetooth, AP, Scan to Connect, 4G (supported only by some models), Positioning, Super Resolution, Panorama, Lighting, etc.

icon	Functional Description
	Wi-Fi switch
	Bluetooth switch
	AP switch, mainly used for PC/mobile phone analysis software to connect to devices wirelessly to obtain video streams
	LAN switch, mainly used for PC analysis software to connect devices to obtain video streams via wired connection
	Device hotspot QR code, mainly used for mobile analysis software to quickly connect to device hotspots
	4G switch (supported only by some models)
	Position switch
	Picture orientation switch
	Super-resolution mode switch, using intelligent algorithms to enhance image clarity and detail
	Panorama mode switch, stitching two or more consecutively shot pictures into one panoramic picture through intelligent algorithms (only supported by some models)
	Light switch
	Adjust screen brightness

	Adjust the volume

5. Observation

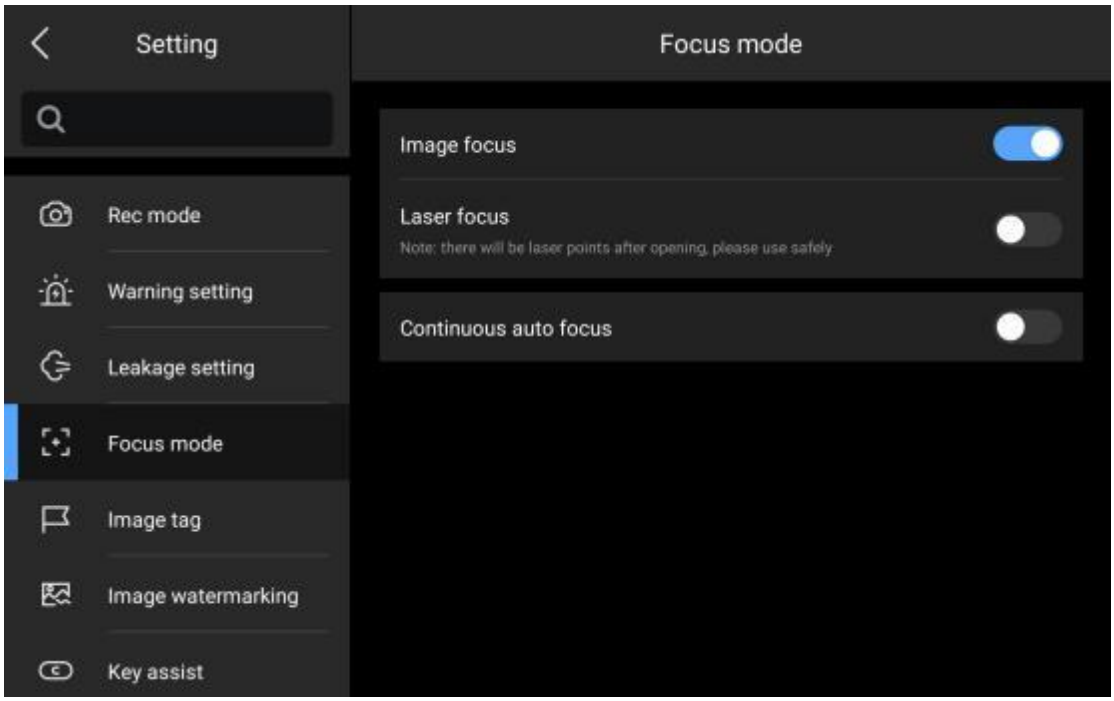
5.1. Image mode switching

According to the observation requirements in different scenes, different image modes are set during observation.

icon	Functional Description
	Turn on the IR (infrared) mode, and the preview screen will display the infrared image of the target being measured.
	Turn on PIP (Picture in Picture) mode. The preview screen will show the superposition effect of the infrared image and the visible light image. Drag the infrared image to modify the size and position of the infrared area. Click  to set the transparency of the infrared image.
	Turn on MIF (fusion) mode, and the preview screen will show infrared thermal image + contour enhancement effect
	Click AU (audio-visual) mode, and the preview screen will show the audio-visual image of the target being measured.
	Click UV (ultraviolet) mode, and the preview screen will show the UV image of the target being measured.

Note: In infrared, picture-in-picture and fusion modes, please ensure that the infrared thermal imager is accurately focused. If the infrared thermal image is not clearly focused, it will affect the temperature measurement accuracy of the thermal imager and cause the visible light and thermal image to not match.

5.2. Focus Mode



This device supports three modes: image focus, laser focus and continuous auto focus.

5.2.1. Image focus and laser focus

Enter "Settings-Focus Mode" and set image focus or laser focus.

Image focus: touch the screen to focus; Laser focus: press the laser button to focus.

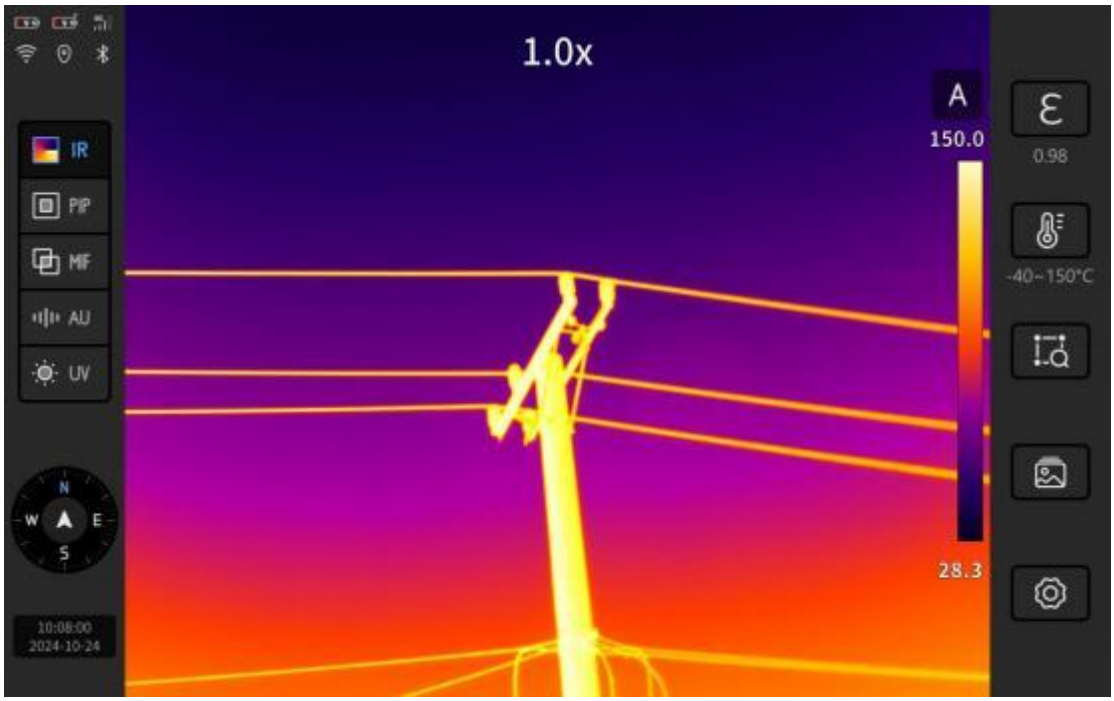


5.2.2. Continuous autofocus

Enter "Settings-Focus Mode" and turn on "Continuous Auto Focus". The thermal imager will quickly and automatically focus according to the target scene.

5.3. Electronic zoom

Use two fingers to zoom in and out for digital zooming.



6. Photo/Record

6.1. Photoshoot

In "Settings->Shooting Mode", turn on the "Photo" switch. At this time, short pressing the camera button will function as "Photo". You can set the photo mode to Photo or Freeze/Photo according to the actual usage scenario.

(1) Photographing: When observing, adjust the focus to make the image clear and then shortly press the "photographing key" to capture the current target image;

(2) Freeze/Photograph: During observation, adjust the focus to make the image clear and then briefly press the "Photograph key" to freeze the current image. Press the "Photograph key" again to save the image and press the "Back key" to cancel the current capture.



6.2. Timed photo taking

Set a specific time interval to automatically take a specified number of photos.

In "Settings->Photography Mode", turn on the "Timed Photography" switch, and set the time interval and number of photos. After the settings are completed, short press the "Photography Key" to start the timed photography during observation, and short press the "Photography Key" again to end the timed photography task and save the picture.

6.3. Panoramic stitching

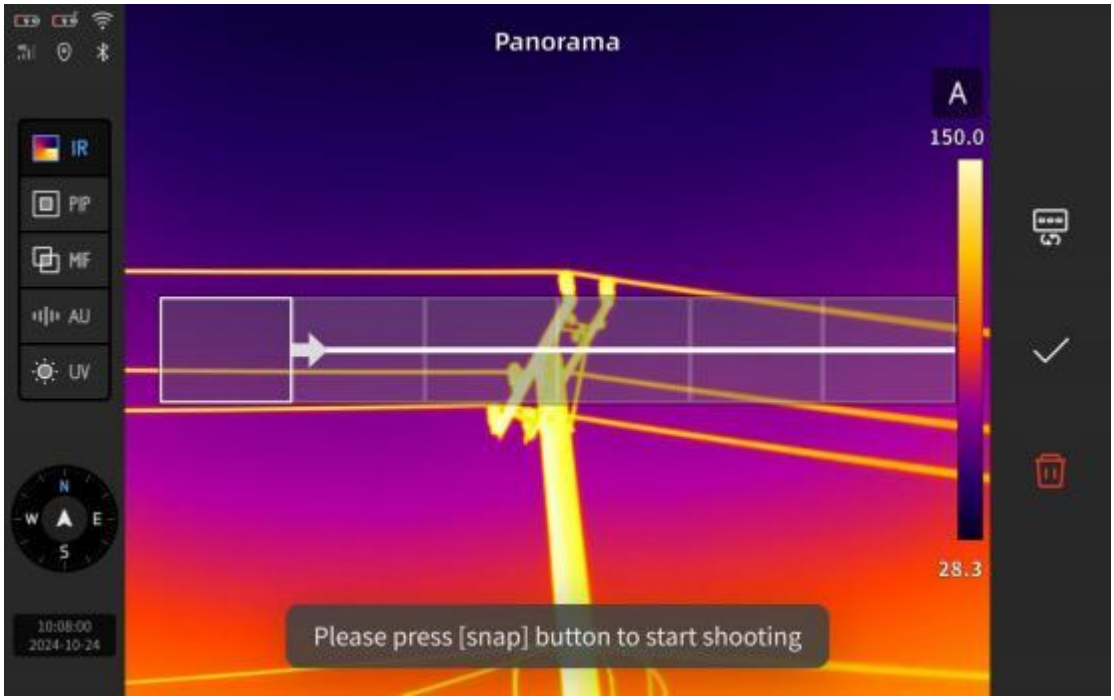
Two or more consecutively shot pictures are stitched into a panoramic picture through intelligent algorithms.

1) Click Panorama in Quick Settings to enter Panorama mode;

2) Short press the "photo button" to start moving the device to take multiple photos (the overlap of adjacent images must be ≥30%);

3) After shooting, click ✓Finish stitching.

Note: The panorama stitching function is only supported in infrared mode.



6.4. Super Resolution

Improve image clarity and details through intelligent algorithms .

Super Resolution  in the Quick Settings to enter the "Super Resolution" mode . The saved infrared image will be enlarged to 4 times the standard pixels, making the image clearer and more detailed.

Note:The super-resolutionfunction is onlysupported in infrared mode.



6.5. Single video recording

In "Settings->Shooting Mode", turn on the "Video Recording" switch. At this time, short pressing the camera button will activate the "Video Recording" function.

1) When observing, short press the "photo button" to start recording;

2) Short press the "Photo button" again to end recording and store both the infrared video and the visible light video.

6.6. Timer video recording

Automatically start recording at the set time and automatically stop recording after the preset time is reached.

In "Settings->Shooting Mode", turn on the "Timed Recording" switch and set the delay time and duration. At this time, short pressing the camera button will function as "Timed Recording".

1) During observation, short press the "photo button" to start the countdown, and the video will automatically start recording when the countdown ends;

2) Short press the “Photo” button again to end the timed video recording.

7.Temperature measurement analysis

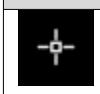
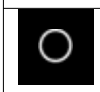
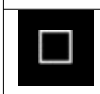
Object analysis refers to the analysis of temperature measurement data in a specified area of the material.

7.1. Add/remove analysis objects



1) Click  to enter the shortcut menu page;

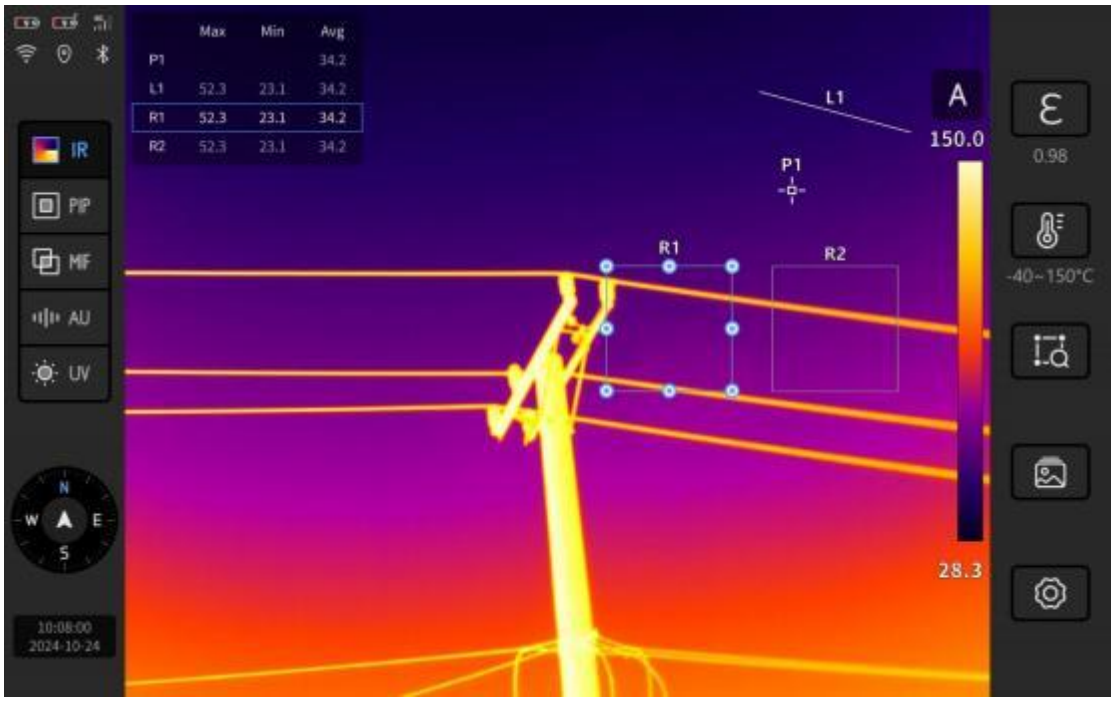
2) Supports adding various types of temperature measurement and analysis objects such as points, lines, circles, rectangles, and strokes.

icon	Functional Description
	Point analysis objects
	Line analysis objects
	Circular analysis object
	Rectangle Analysis Object
	Irregular analysis objects
	Temperature difference analysis, see Chapter 7.7 for details
	delete

7.2. Change the size and position of the analysis object

1) Select the analysis object;

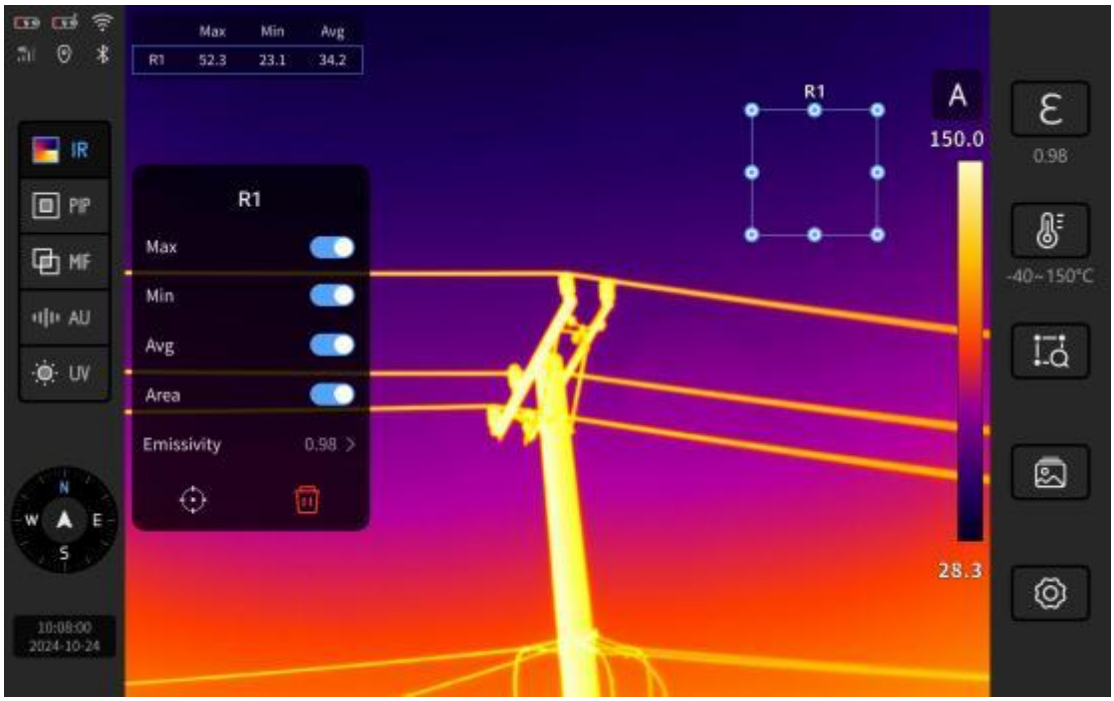
2) Drag to change the size and position of the analysis object.



7.3. Customize the display of analytical data

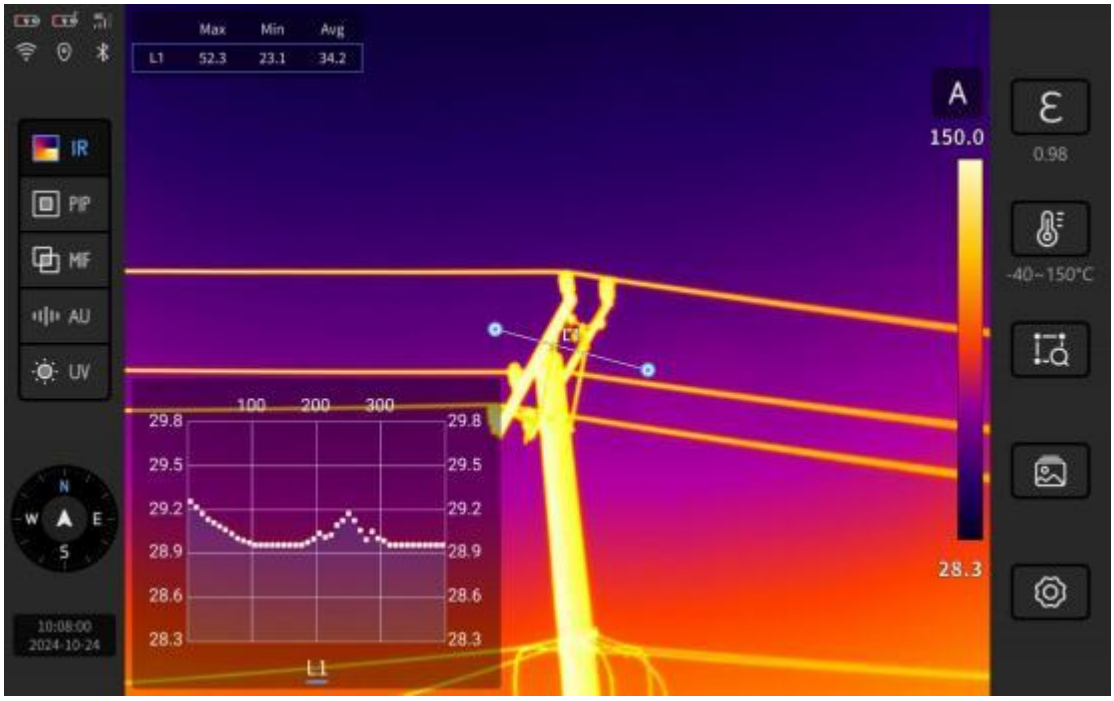
Long press the analysis object and select the data to be displayed, such as maximum temperature, minimum temperature, average temperature, and regional area (only for regional analysis objects, laser ranging must be turned on when measuring the area).

Click to delete the analysis object.



7.4. Line temperature trend chart

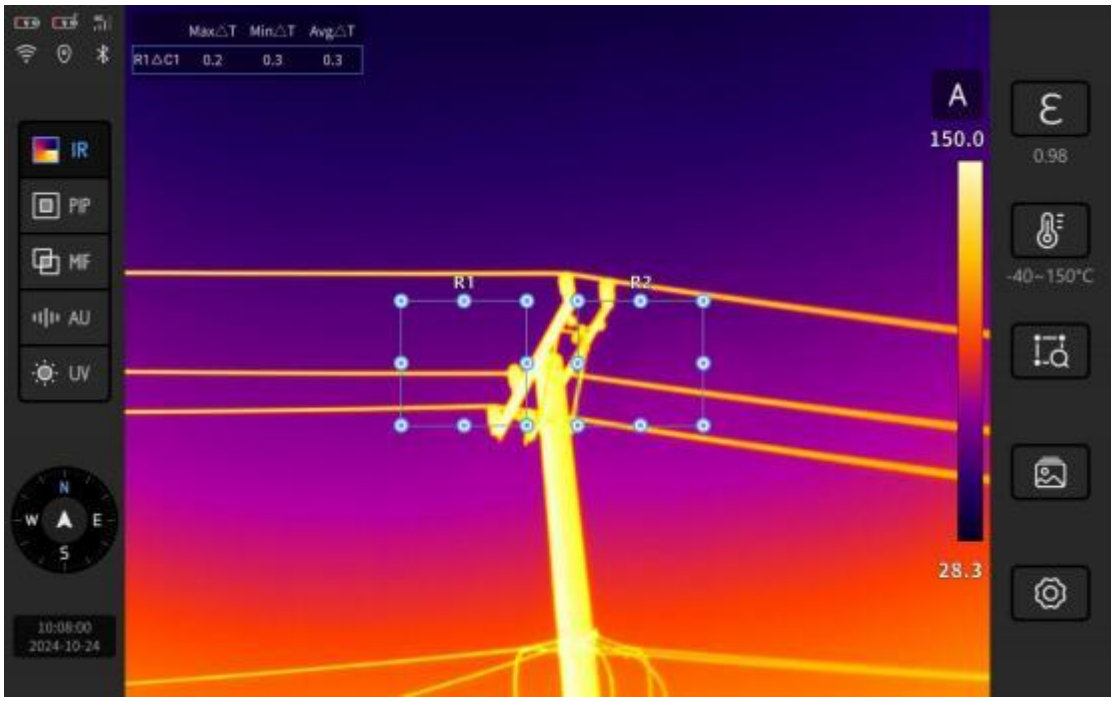
After selecting "Line Analysis Object", the temperature trend graph of the analysis object is displayed. The horizontal axis represents pixels and the vertical axis represents temperature.



7.5. Temperature difference analysis

Analyze the temperature difference between two areas.

After adding at least 2 analysis objects, click the temperature difference mode "△T", select any 2 analysis objects , and perform temperature difference calculation . Click "△T" again to exit the temperature difference mode.



7.6. Isotherms

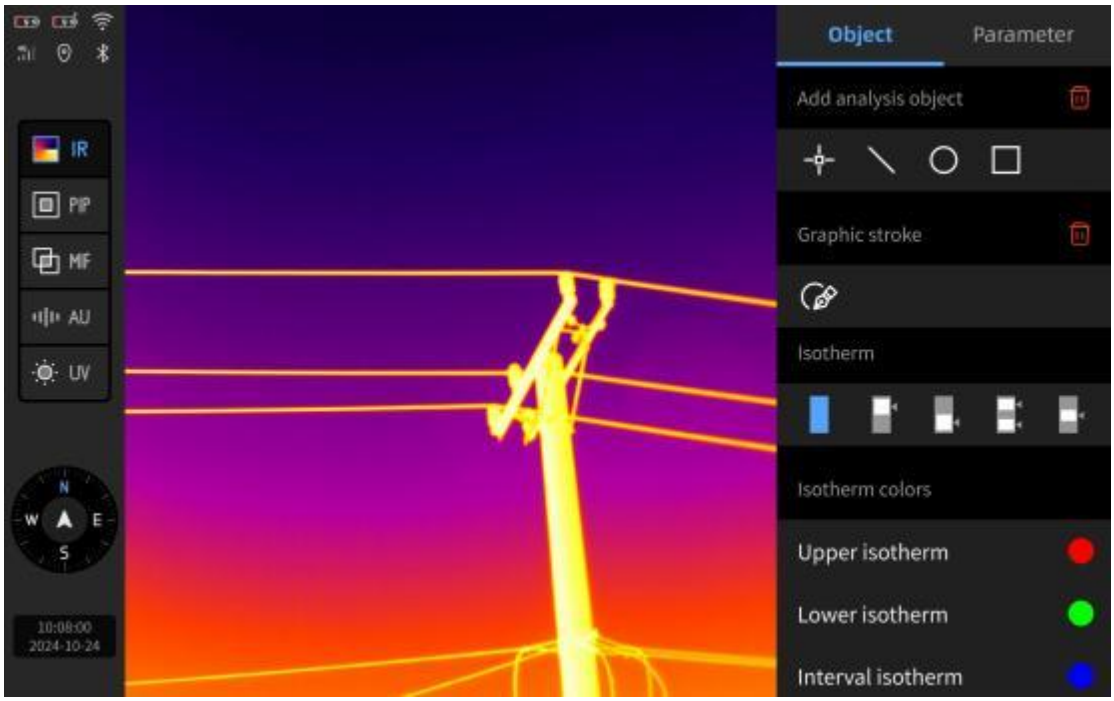
distribution of the target being measured . This device supports setting four isotherms: upper limit, lower limit, inside the range, and outside the range, and the isotherm color can be customized. Note: Isotherms are only supported in A (auto dimming) mode.

Upper limit: Set the color of the upper limit temperature range to highlight the area above the upper limit temperature;

Lower limit: Set the color of the lower limit temperature range to highlight the area below the lower limit temperature;

Within the interval: Set the color of the temperature range within the interval to highlight the area within the interval temperature;

Outside the range: Set the color of the upper/lower temperature range respectively to highlight the area outside the range temperature.



7.7. Color highlights

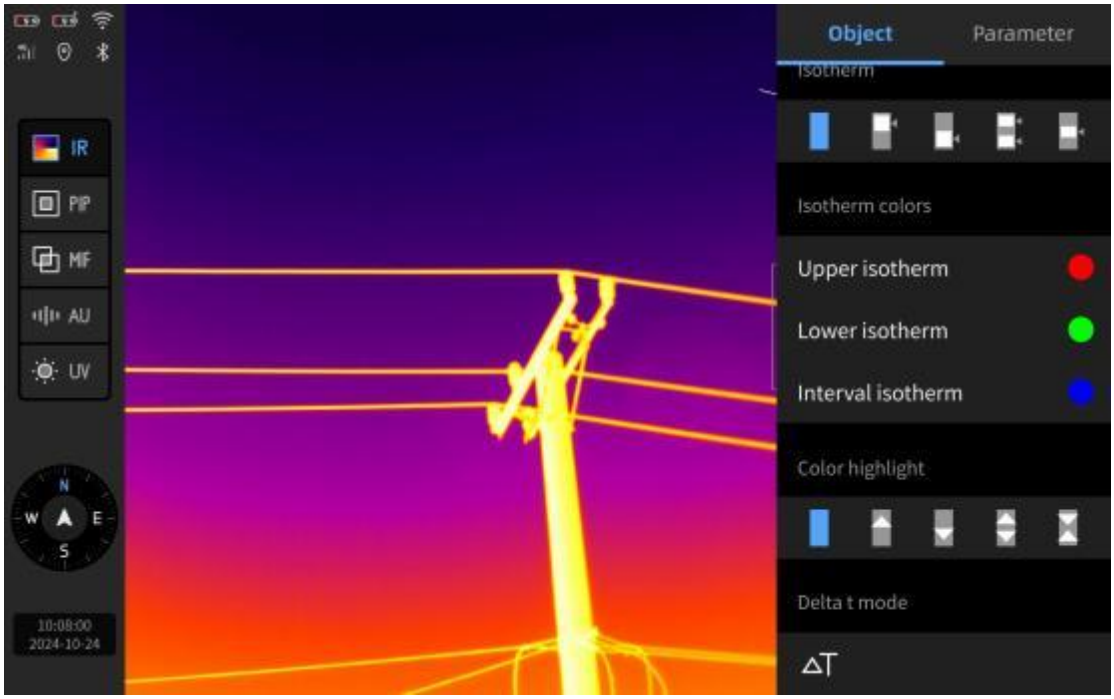
Through image processing technology, the color of specific temperature areas is highlighted for easy observation and identification. It supports four modes: upper limit, lower limit, inside interval, and outside interval . (Not effective in visible light mode)

Upper limit: Set the upper limit temperature. The picture above the upper limit temperature will be mapped with the corresponding color palette, otherwise it will be mapped in the form of visible light;

Lower limit: Set the lower limit temperature. The picture below the lower limit temperature will be mapped with the corresponding color palette, otherwise it will be mapped in the form of visible light;

Within the interval : Set the upper and lower temperature limits. The images within the set temperature range will be mapped with the corresponding color palette, and those outside the range will be mapped in the form of visible light.

Outside the interval : Set the upper and lower temperature limits. The screen outside the set temperature range will be mapped with the corresponding color palette, and the screen within the range will be mapped in the form of visible light.



7.8. Level / Span

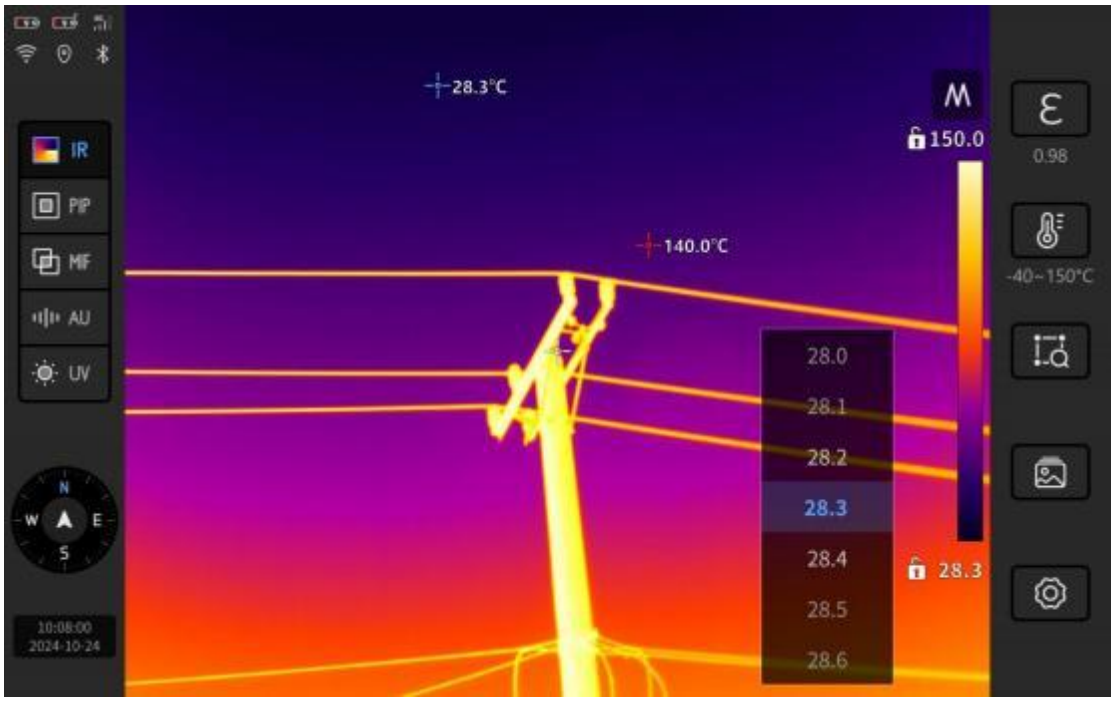
According to the current target heat distribution, set the Level/Span mode to obtain the best thermal image effect. Supports three modes: automatic (A), manual (M), and semi-automatic (S).



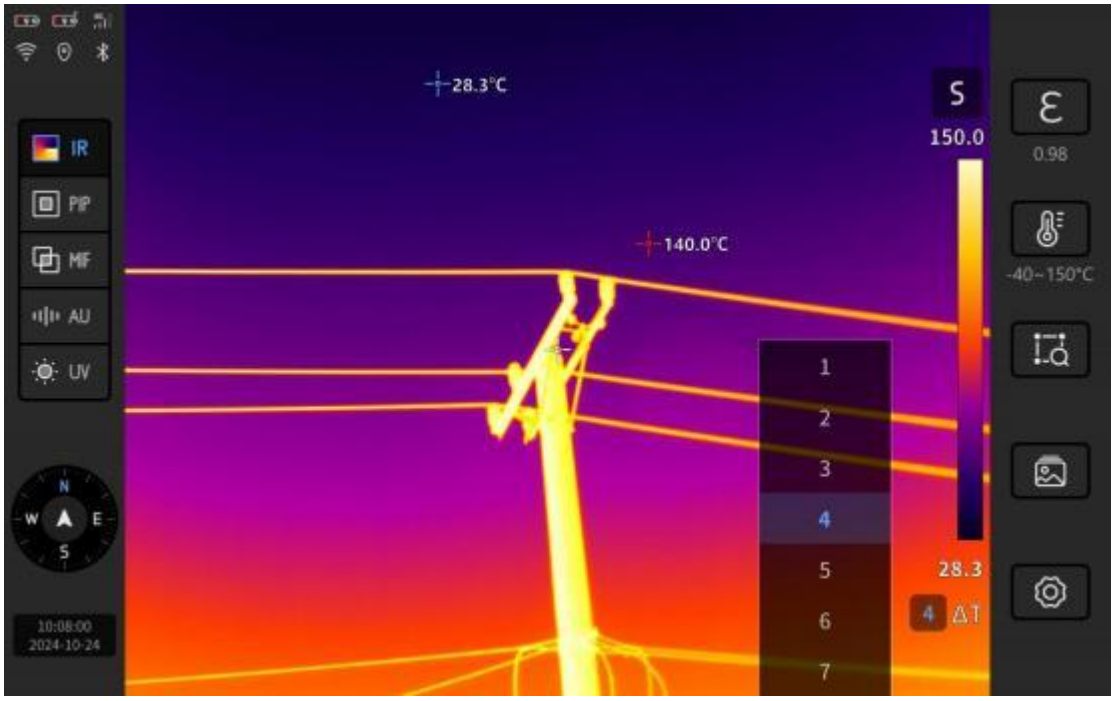
When observing, click "A"/"M"/"S" to switch modes.

(1) the temperature width according to the global maximum and minimum temperatures of the image to achieve the best image presentation effect.

(2) Manual (M) mode: Manually set the upper and lower limits of the temperature width. During the adjustment process, the image dimming changes synchronously.



(3) Semi-automatic (S) mode: Manually set the △T (temperature difference) value, automatically adjust the upper and lower limits of the temperature width according to the set temperature difference value, and the image dimming changes synchronously.



7.9. Color Palette

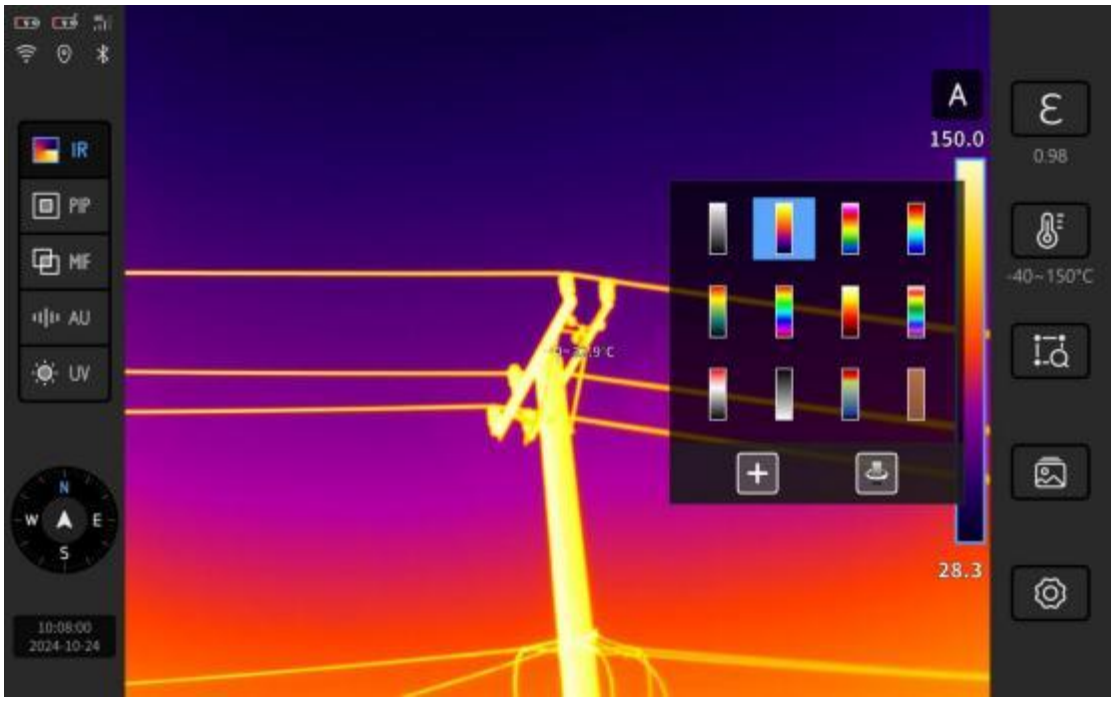
Different color palettes will display different temperature colors, and the colors will vary with the temperature, making it easier to analyze the details of the image.

1) When observing , click the palette area on the right side of the screen to pop up the palette options, and select the corresponding color band according to the scene . Reference for palette selection:

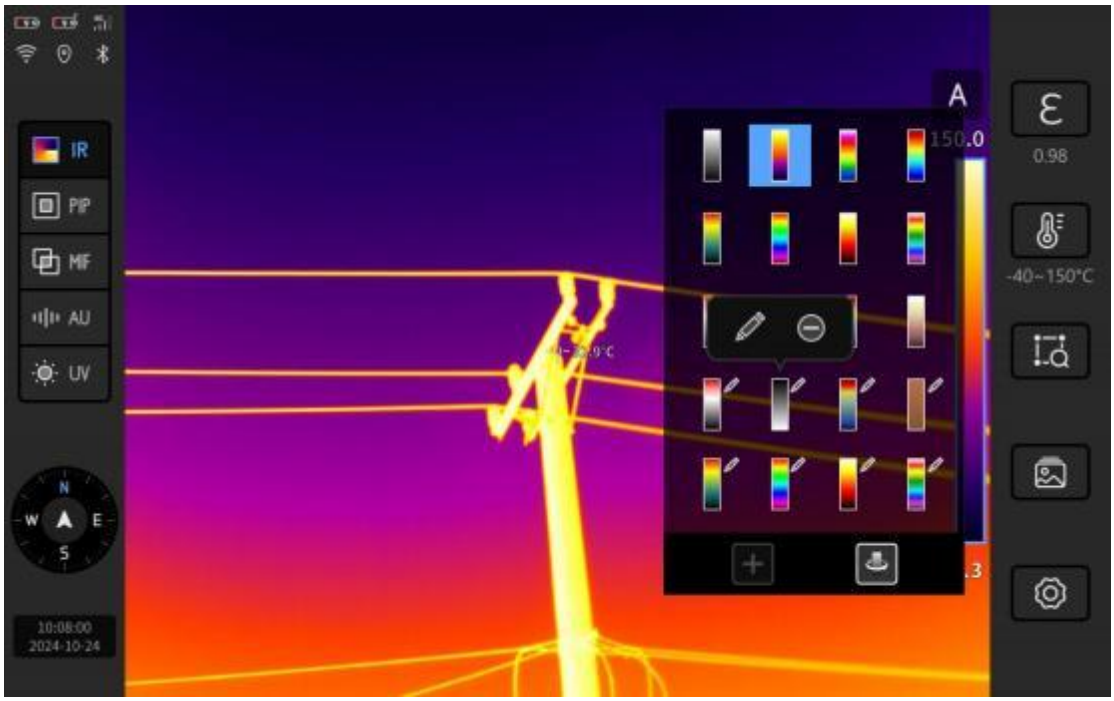
type		Example
Application Scenario	Power inspection/petrochemical metallurgy	**Iron red palette** is usually used , which has high visual contrast, especially in strong outdoor light environment, which can enhance the visibility of the image and enable inspectors to clearly see the temperature difference even in complex outdoor environment.
	Building HVAC	Typically a **rainbow 1** color palette is used, providing a rich color variation that helps detect subtle temperature differences, which is critical for thermal imaging

		inspections in the building industry, where thermal defects often manifest as small temperature changes.
	Industrial temperature measurement	**Rainbow 2 color palette** is commonly used . In industrial applications, accurately identifying small changes in temperature is critical to monitoring equipment performance and preventing failures. Rainbow 2 helps users identify temperature differences more clearly by enhancing color contrast.
Temperature Difference	Large temperature difference environment	It is recommended to use the **white hot** and **black hot** palettes. These two palettes can provide clear images and accurate temperature comparisons in large temperature difference environments, helping users

		better identify and distinguish different temperature areas.
	Small temperature difference environment	It is recommended to use **Rainbow 2** and **Arctic** palettes. These two palettes can enhance the contrast of the image and help accurately locate objects in environments with small temperature differences.



3) Long press the color palette to move, edit or delete; click "+" to add a new color palette and customize the color types; click " " to invert all color bands.



7.10. Temperature measurement parameters

The temperature measurement parameters include emissivity, reflection temperature, atmospheric temperature, atmospheric transmittance, relative humidity, target distance, external optical temperature, and optical transmittance. To obtain more accurate temperature measurement, the parameter values can be modified manually, and the modified parameters will take effect immediately.



parameter	Functional Description
Emissivity	Refers to the ratio of the energy radiated outward by the measured object to the energy radiated by a black body at the same temperature and wavelength, and the value is between 0 and 1. The higher the emissivity, the stronger its infrared radiation ability; conversely, the lower the emissivity, the relatively weaker the infrared radiation ability; Set different emissivity values according to the target being measured; set custom emissivity values when the values in the standard emissivity table are not suitable for measurement Reference: See "13. 1. Common Object Emissivity

	Table" in this document for details.
Reflected temperature	The temperature corresponding to the infrared radiation reflected by other objects in the target environment; If the emissivity of the target is low and the actual temperature is much lower than the temperature of its reflection source, the reflection temperature value should be set to the temperature value of the reflection source (if the on-site test conditions permit, avoiding reflection interference as much as possible can greatly improve the measurement accuracy)
Atmospheric temperature	The air temperature between the thermal imager and the target object; The atmospheric temperature value is usually set to the default value. This parameter needs to be set only when the atmospheric temperature is higher than the actual temperature of the measured target.
Atmospheric transmittance	Atmospheric transmittance refers to the different attenuation levels caused by the interaction of the target's infrared radiation with the absorption and scattering of atmospheric components (gas molecules such as water, carbon dioxide, and

	aerosols) when the target's infrared radiation is transmitted in the atmosphere; Intelligent correction, does not support modification
Relative humidity	Relative humidity of the ambient air where the target is located; In case of short distances and normal humidity, relative humidity is usually the default value.
Target distance	The actual distance between the thermal imager and the target being measured. At short distances or less than the maximum accurate temperature measurement distance of the thermal imager, the target distance is usually set to the default value.
External optical temperature	The external optical temperature setting is used to compensate or correct the influence of the temperature of the external optical device itself on the measurement target; The external optical temperature is set to the default value. The setting is considered only when the temperature of the external optical device is higher than the temperature of the measured target.
Optical	Optical transmittance refers to the transmittance of

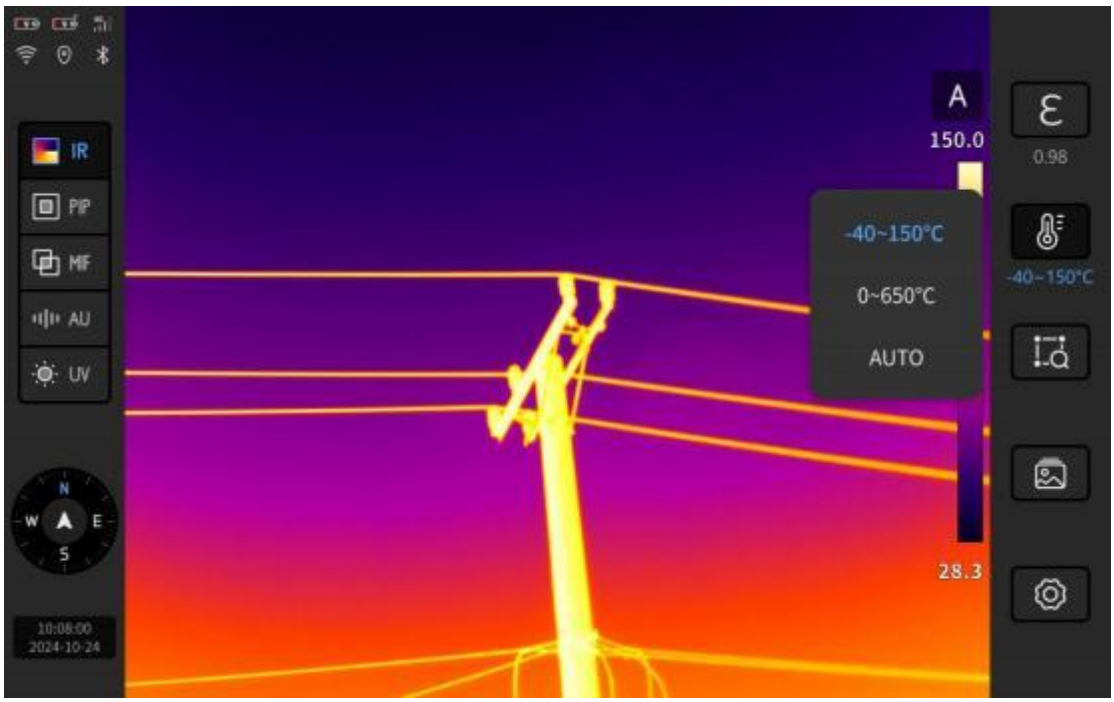
transmittance	any external lens or infrared window used in front of the device lens; If the optional external optical lens has been calibrated at the factory, or there is no external infrared window, the optical transmittance is usually set to the default value.
Dew point value	When the water vapor content in the air remains unchanged and the air pressure is kept constant, the temperature at which the air is cooled to saturation is called the dew point temperature. The dew point value is automatically calculated by the formula and cannot be modified.

If you are unsure which values to use, the following values are recommended:

Emissivity	0.95
Reflected temperature	23℃
Atmospheric temperature	23℃
Relative humidity	70%
Target distance	3.0m
External optical temperature	20℃
Optical transmittance	100%

7.11. Temperature measurement range

Set the appropriate temperature measurement range according to the temperature of the measurement target.



8.Audio and video preview

8.1. Sound wave frequency adjustment

Sound waves can distinguish different faults based on frequency modulation. The higher the sound wave frequency band, the easier it is to be absorbed by the atmosphere . High-frequency detection is suitable for short-distance scenarios, while low-frequency detection is suitable for long-distance scenarios. The higher the frequency, the better the directivity, and the easier it is to locate the fault.

Slide your finger on the spectrum to adjust the frequency band. 20~30kHz is recommended for leakage detection; 10~30kHz is recommended for partial discharge detection .



8.2. Cloud Ribbon

Supports 12 basic color bands: consistent with the basic color band of the infrared color band, with adjustable opacity.



8.3. PRPD

PRPD is a typical ultrasonic discharge spectrum for partial discharge detection, and the discharge type is analyzed based on the spectrum.

The vertical axis is the amplitude of the partial discharge pulse collected by the microphone array, and the horizontal axis represents the phase angle when the partial discharge pulse occurs. Evaluate the discharge type: background noise, surface discharge, suspension discharge, and tip discharge.



8.4. Discharge type



Based on the PRPD graph, the algorithm analyzes the discharge type and confidence percentage in real time.

8.5. Sound pressure level adjustment



The sound pressure limit adjustment can find all the sound field positions where the sound sources in the whole field exceed this limit.

Slide this red line up and down to adjust the limit. The curve represents the peak value of the full-field sound source beam, which is the accumulated value of sound pressure, and the left side represents the current frame data.

8.6. Detection Mode

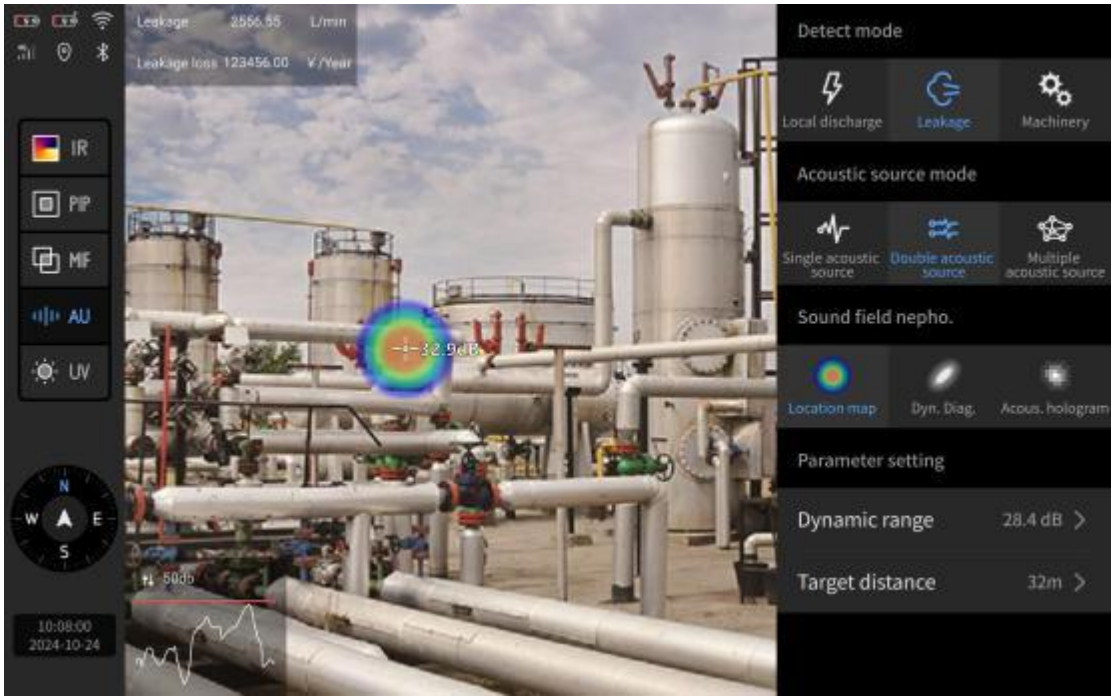
Supports 3 modes: partial discharge detection, leakage detection and mechanical detection.

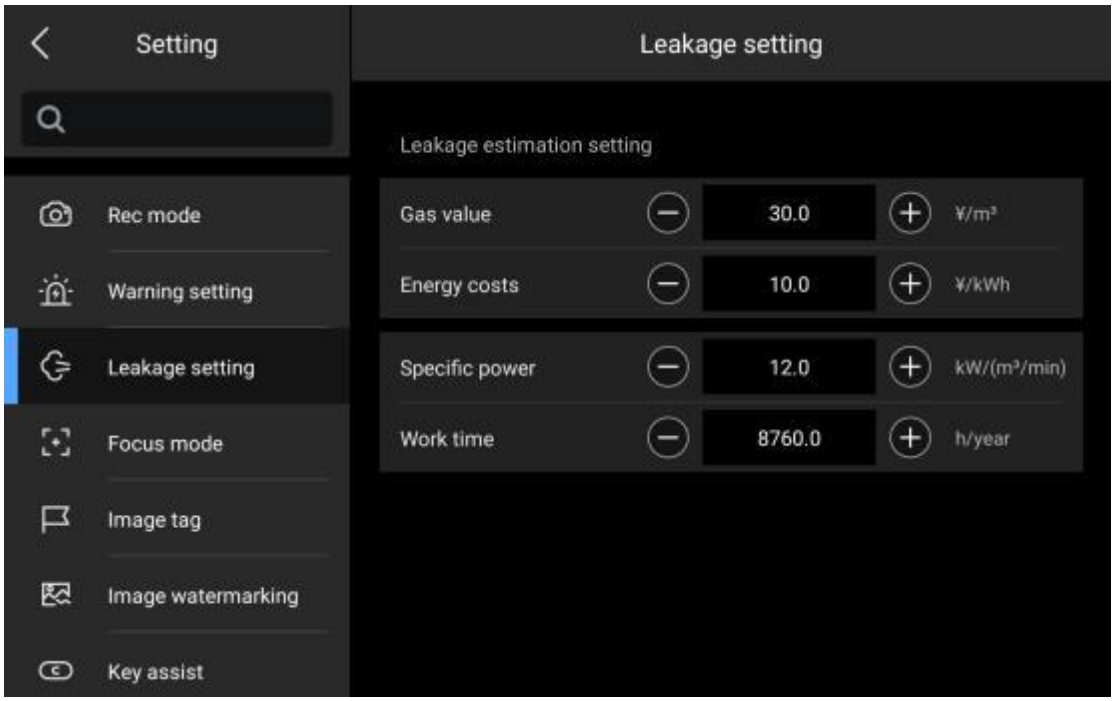
8.6.1. Partial discharge detection



Locate the partial discharge location and intelligently determine the discharge type based on the PRPD diagram.

8.6.2. Leak Detection





Set gas leakage estimation parameters, automatically calculate leakage volume and leakage loss value, and guide users to calculate the return on investment ratio.

8.6.3. Mechanical testing



Locate mechanical vibrations.

8.7. Sound source mode

Supports multiple sound source modes, including single sound source, dual sound source, and full sound source modes.

Single sound source: detect the largest sound source within the sound field intensity.

Dual sound sources: Detect the two largest sound sources within the sound field intensity.

Multiple sound sources: Detect all sound sources within the sound field intensity range.

8.8. Positioning map

During detection, it is used to check the position and shape of the sound and image cloud map.

The first one: , draws a regular circular sonogram based on the maximum sound pressure in the center.

The second method is to draw irregular cloud images based on the sound pressure value within the actual sound field.

The third method: obtain full-field sound source imaging.

8.9. Parameter settings

8.9.1. Dynamic Range

Used to adjust the sensitivity of the sound and image. The larger the value, the larger the cloud image, and the smaller the value, the smaller the cloud image.

8.9.2. Target distance

Set the distance between the imager and the target. Affects the leakage volume and leakage loss calculation.

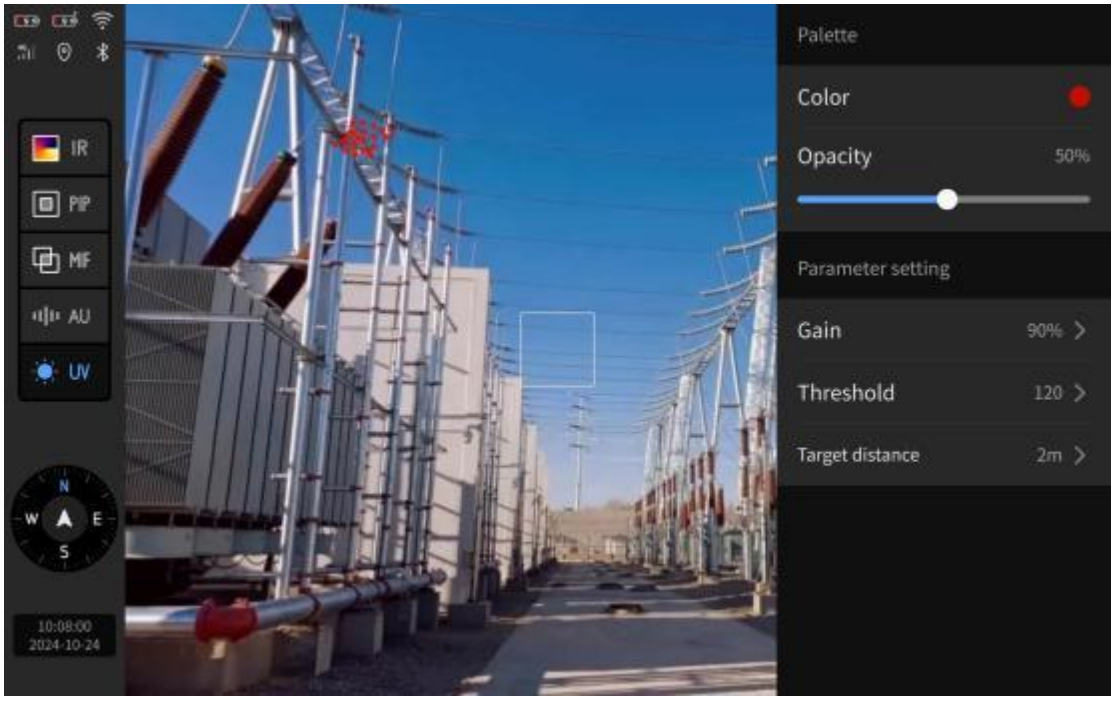
9. UV Preview

9.1. UV imaging



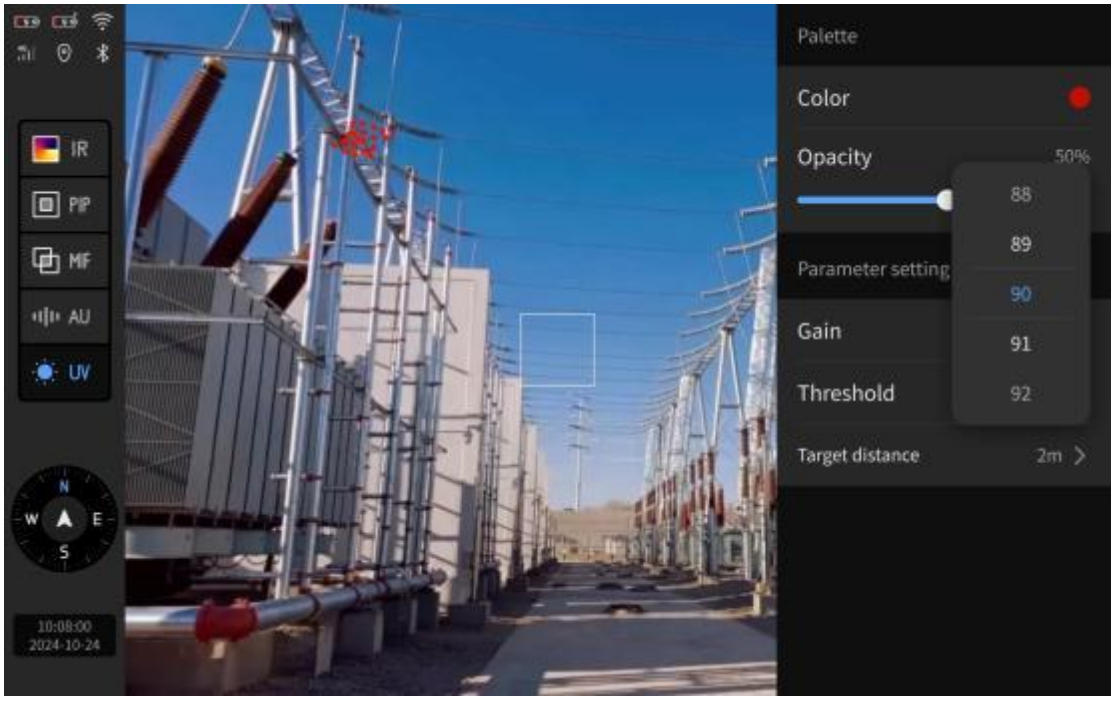
In the visible light image, the fault location is detected through ultraviolet imaging.

9.2. Image Settings



Adjust the color and opacity of UV imaging.

9.3. Parameter settings



9.3.1. Gain Setting

Set the UV gain parameter to amplify the photon signal. The greater the gain, the more sensitive the UV detection.

9.3.2. Threshold setting

Set the UV threshold parameter to filter the photon detection signal. The threshold setting affects the fault accuracy.

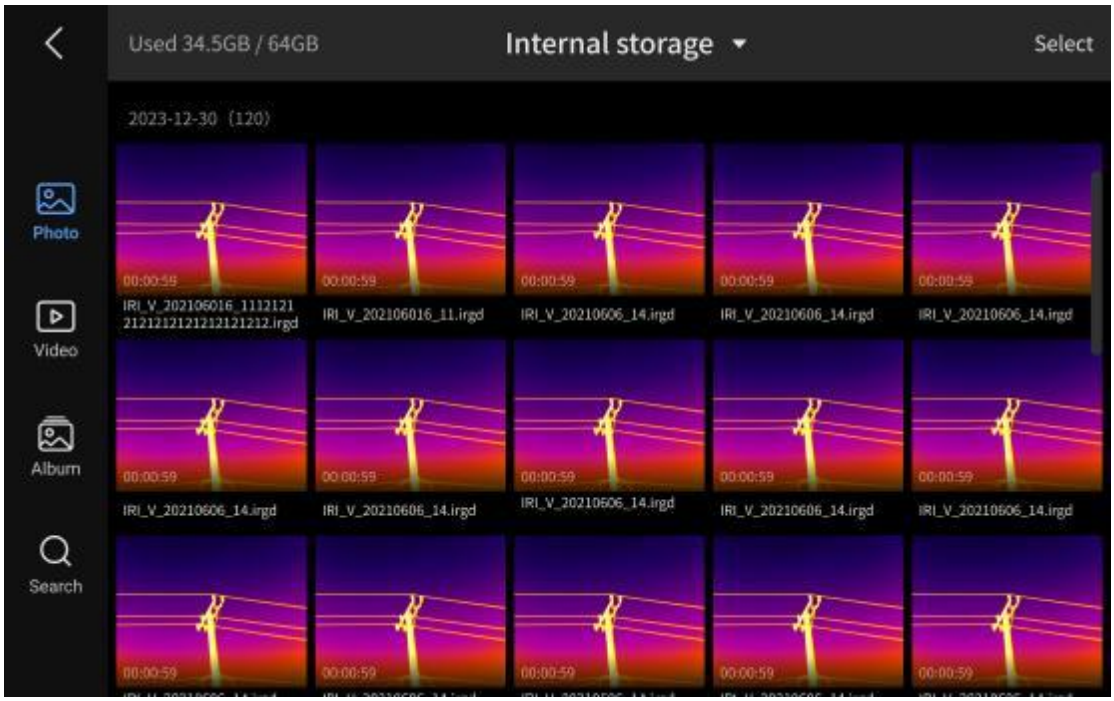
9.3.3. Target distance

Set the distance between the device and the target. Affects the accuracy of UV imaging.

10. Gallery

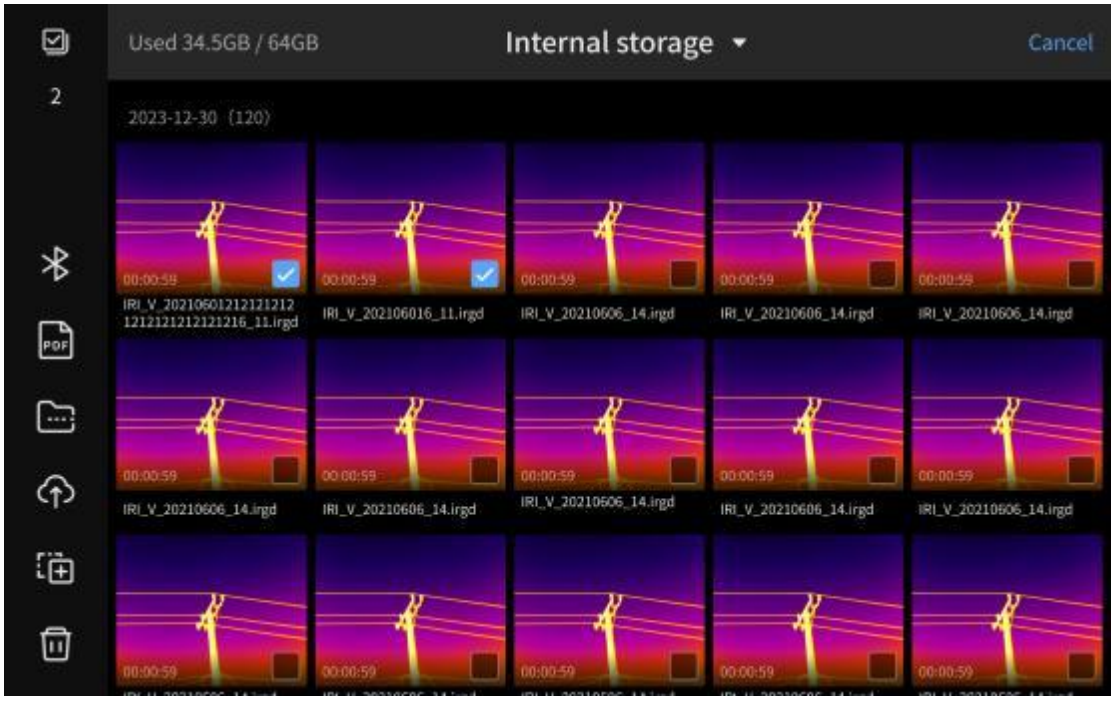
View all the images you have saved. Click  to enter the gallery interface.





10.1. Select image

1）In the gallery interface, click "Select" in the upper right corner or long press to select the picture to transfer it via Bluetooth, generate PDF reports, etc.



2) Click to select local device , SD card, or cloud disk to filter the images in the corresponding path .

10.2. Image Editing



1) In the gallery interface, click any picture to enter the editing interface;

2) Click  to add text, voice, picture , or graffiti annotations to the current picture;

3) Click  to collect, rename, transfer via Bluetooth, generate PDF report , upload to cloud, cut to SD card, delete, etc. the current picture ;

4) Click " " to add / modify analysis objects , modify isotherms, calculate temperature differences, and modify temperature measurement parameters for infrared images . The operation is the same as "7. Temperature Measurement Analysis"; for audio and video images, parameters can be modified and test results can be evaluated.

5) Click " " to modify the UV imaging color and opacity for UV images .

10.3. Scaling an image

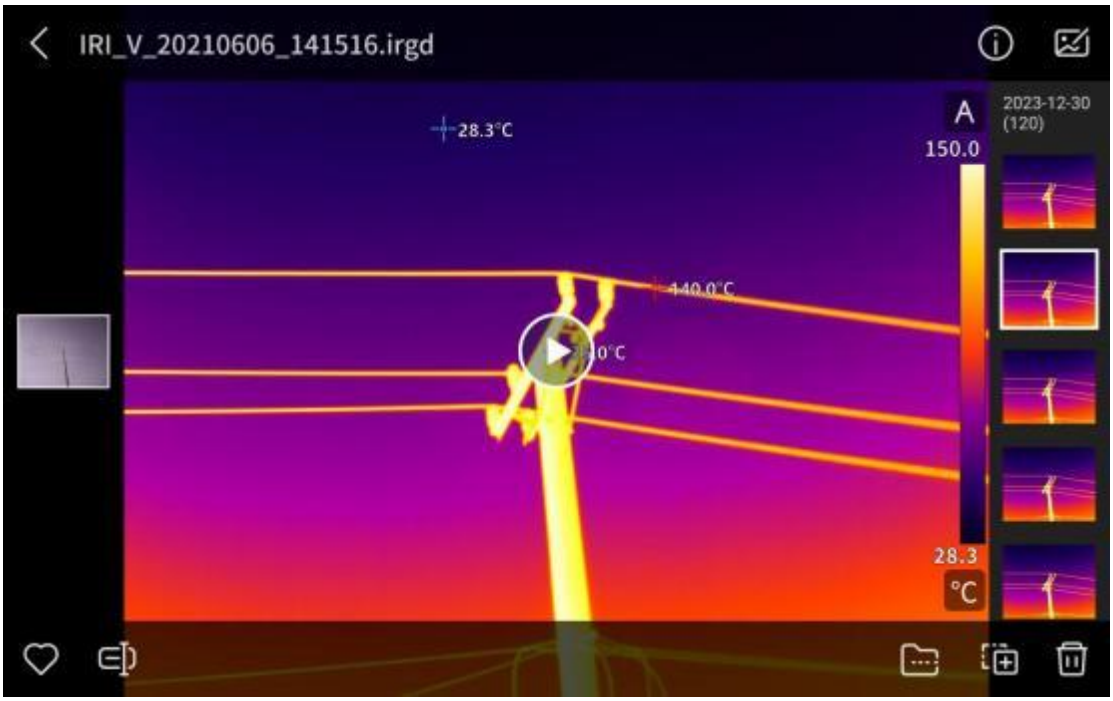
When editing a picture , you can pinch two fingers together to zoom in or out. When the image is zoomed in, you can slide anywhere on the screen to move the image .

10.4. Video Editing

1) Click  to enter the video preview interface ;



2) Click any video file to view the video details ;



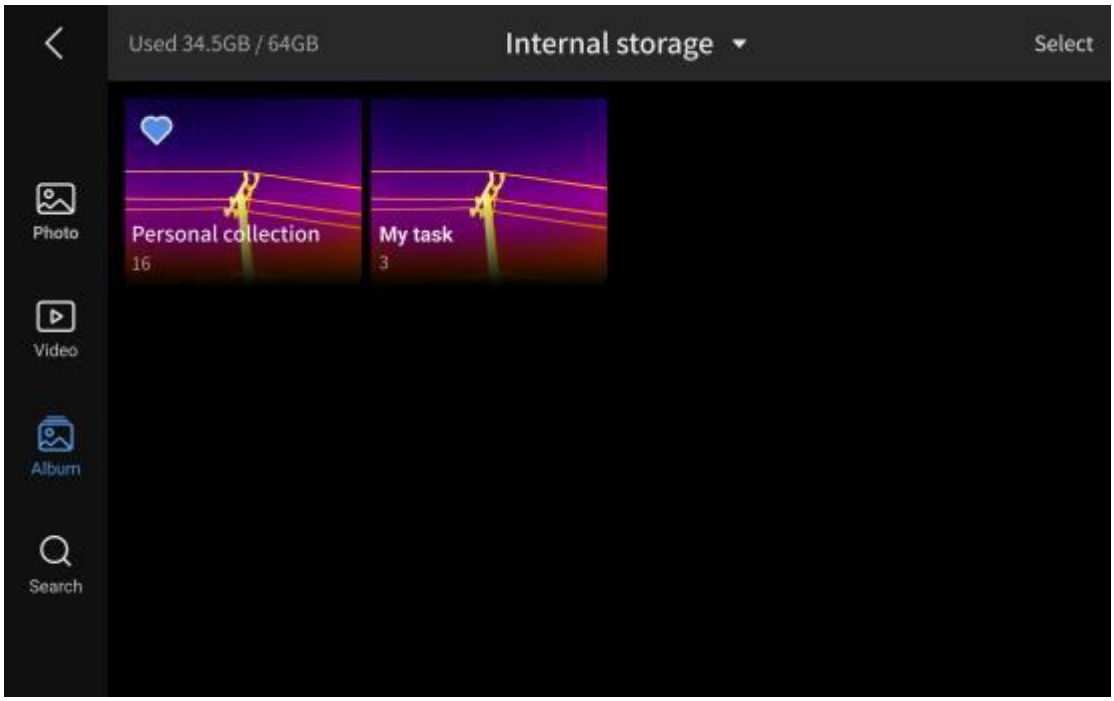
3) Click  to play the video ;

4) The operations of collection, renaming, transfer, cutting to SD card, deletion, analysis (only supports videos in irgd format) are the same as those for pictures;

5) When playing a video, click  to capture the current frame.

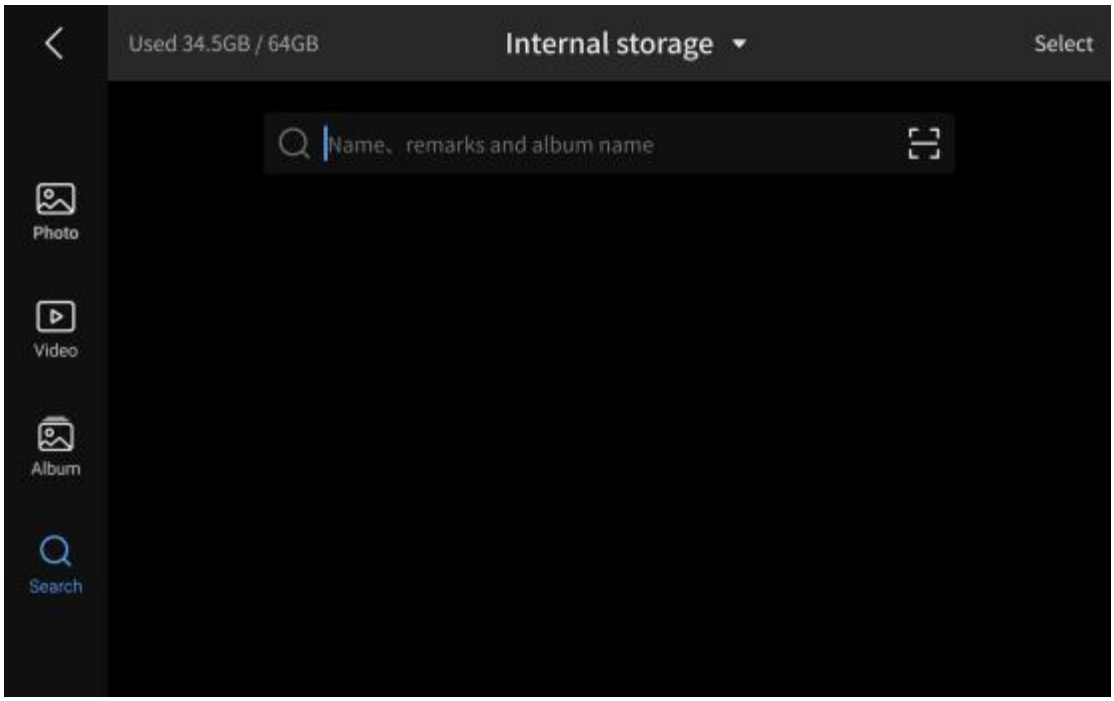
10.5. Photo Album

Click  to enter the album interface to view and edit "Personal Favorites " and user-created albums .



10.6. File Search

Click  to enter the file search interface, where you can search by name, note, or album name .



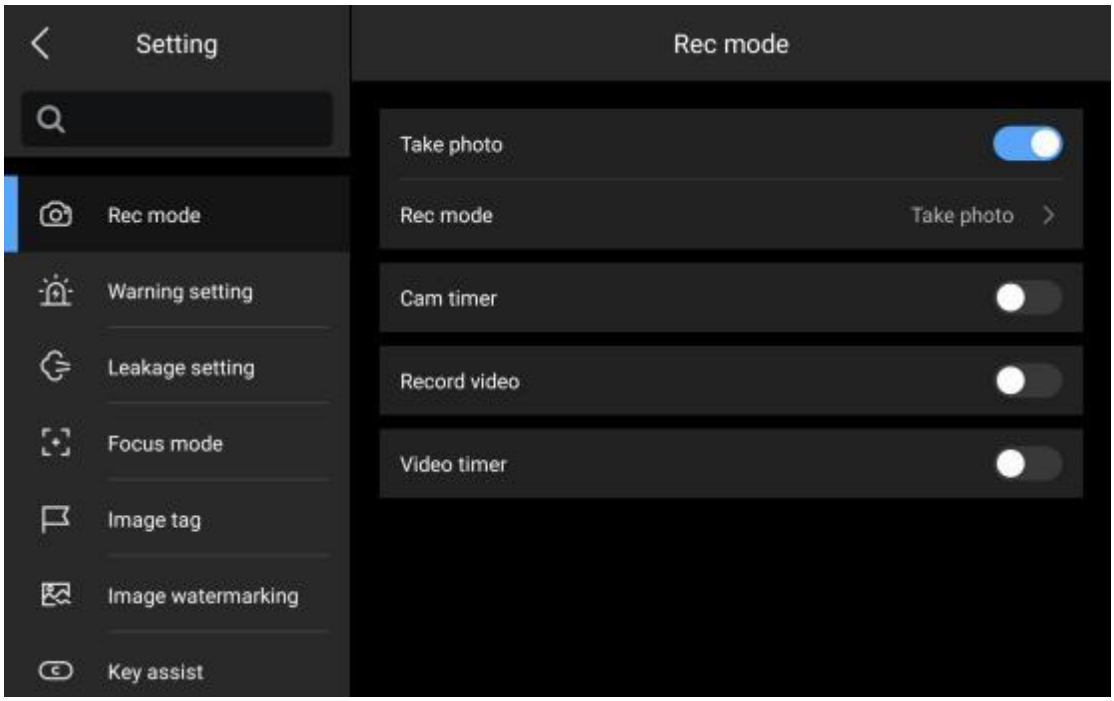
11. System Settings

Click  to enter the setting interface .



11.1. search

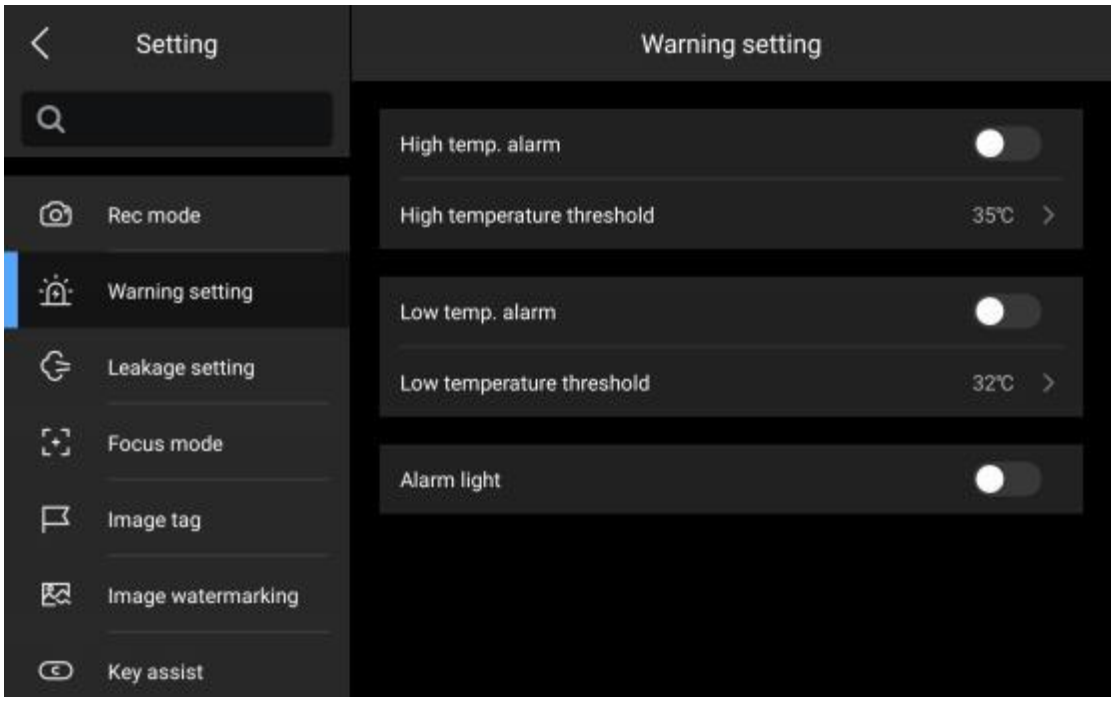
Click to search for  the function items that need to be set by keyword .



11.2. Shooting Mode

For details, please refer to "6. Photo/Record" in this document.

11.3. Temperature alarm

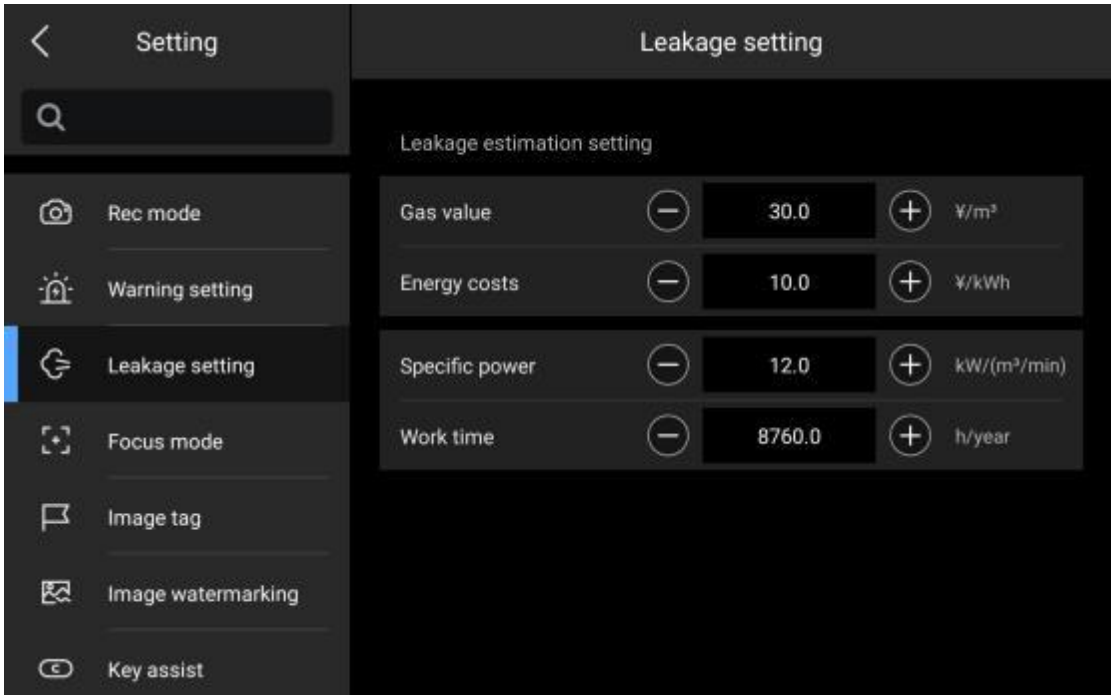


Set high temperature alarm and low temperature alarm, support three modes of light flashing, buzzer reminder and color warning.

(1) High temperature alarm: triggered when the target temperature exceeds the high temperature threshold;

(2) Low temperature alarm: triggered when the target temperature is lower than the low temperature threshold.

11.4. Leakage settings

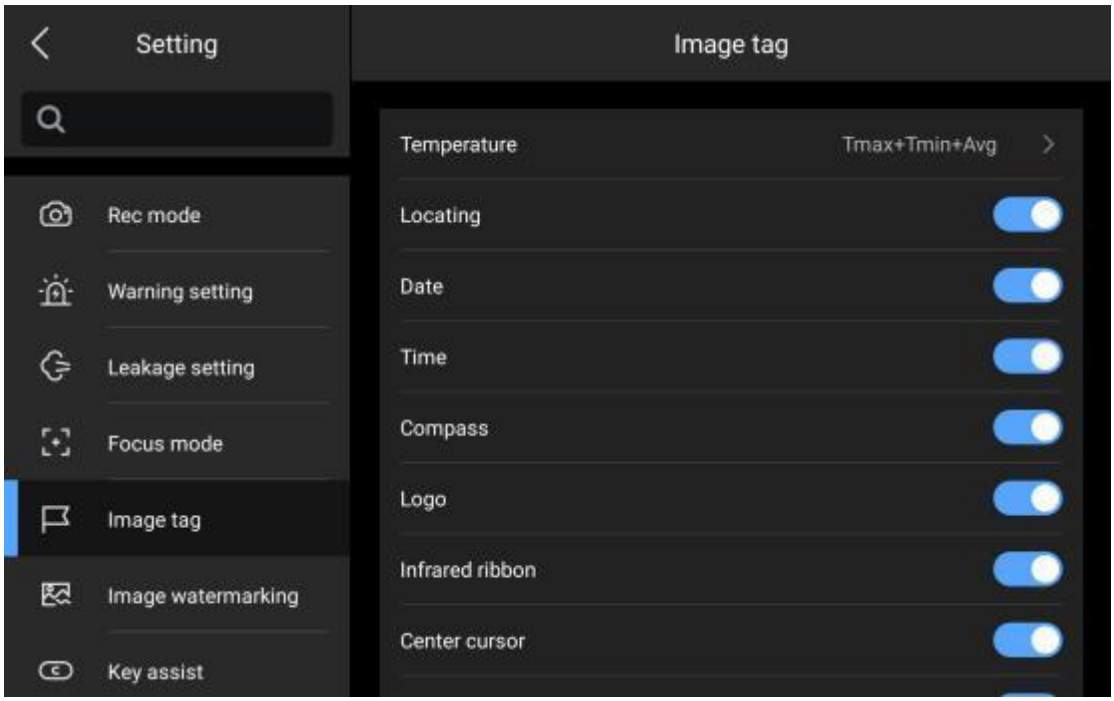


Set the leakage gas parameters for evaluating leakage losses.

11.5. Focus Mode

For details, see "5.2 Focus Mode" in this document.

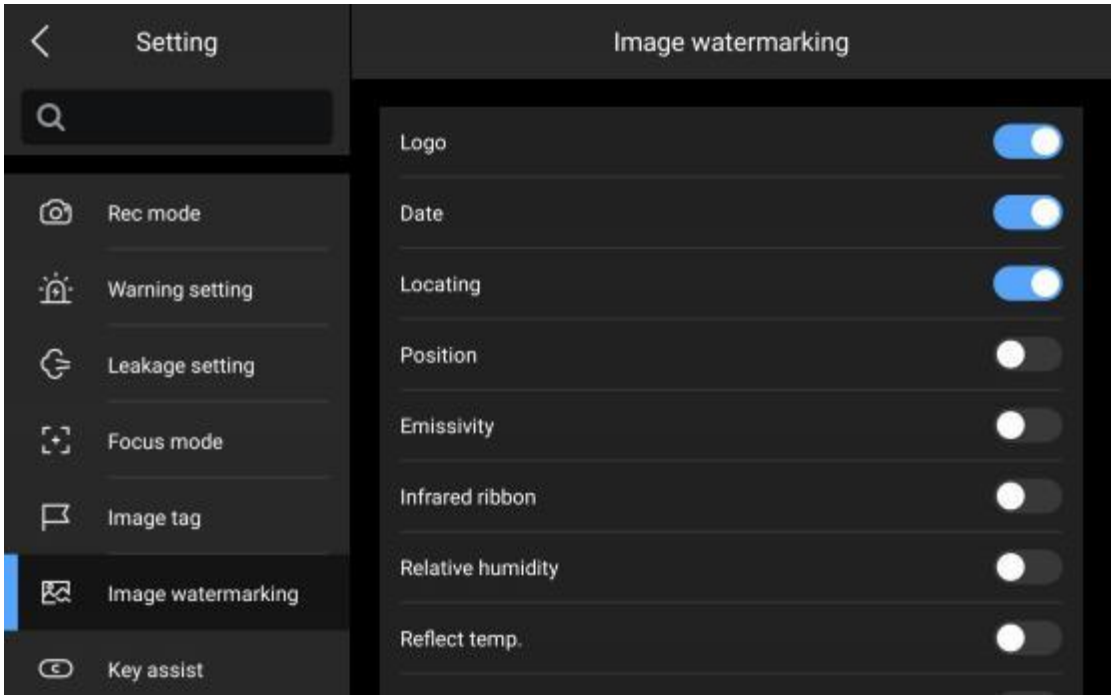
11.6. Image tagging



Watermark information displayed on the preview screen during real-time observation .

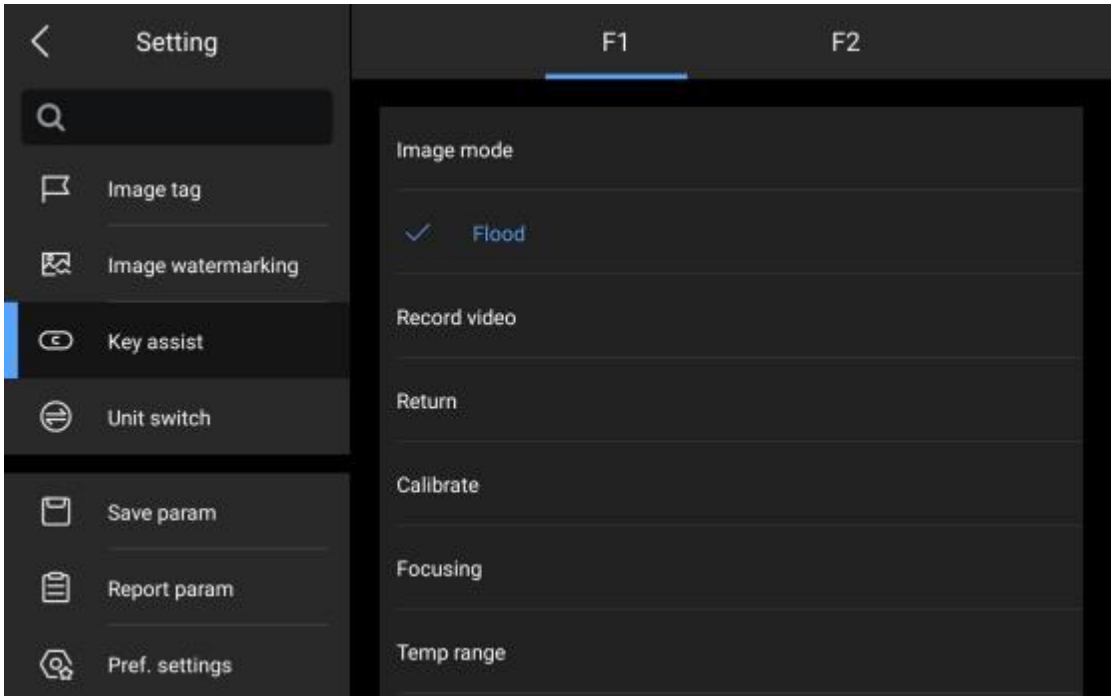
11.7. Image Watermark

When saving pictures or videos, superimposed watermark information is displayed.



11.8. Assistive buttons

Set the shortcut operations of the " F1 " and " F2 " auxiliary keys on the body to support image mode, lighting, recording, focus , etc. After the settings are completed, the auxiliary keys have corresponding functions .



11.9. Unit Switching

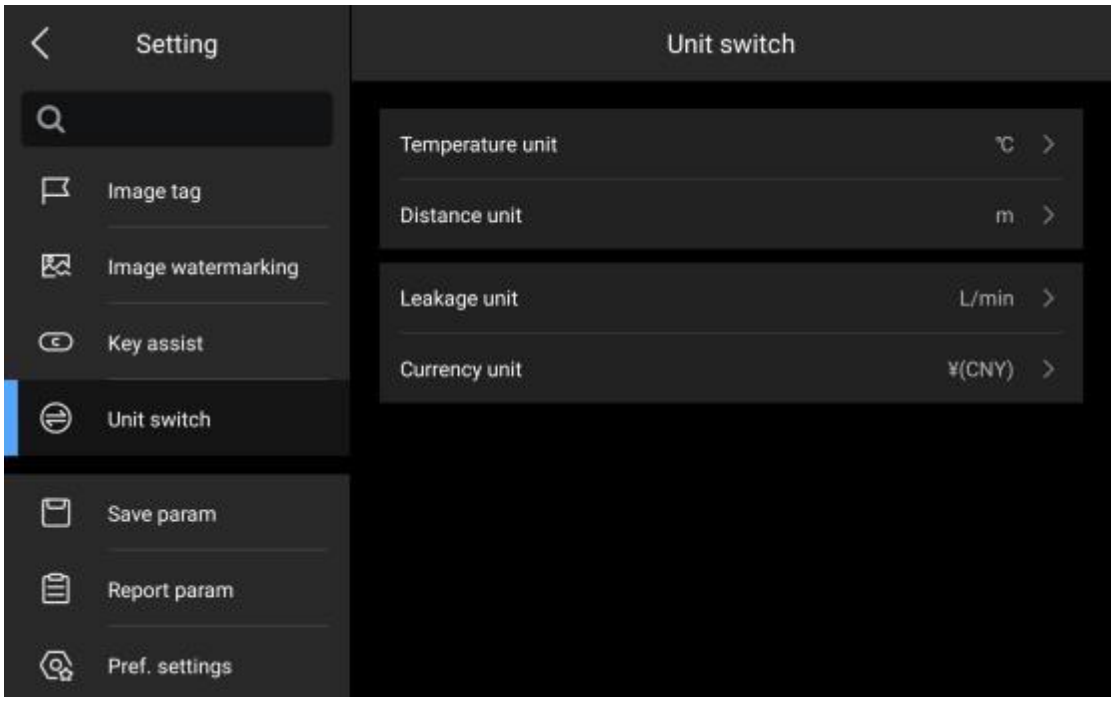
Set temperature , distance , leakage, currency unit.

(1) Temperature units: Celsius, Fahrenheit, Kelvin ;

(2) Distance units: meters, yards, feet ;

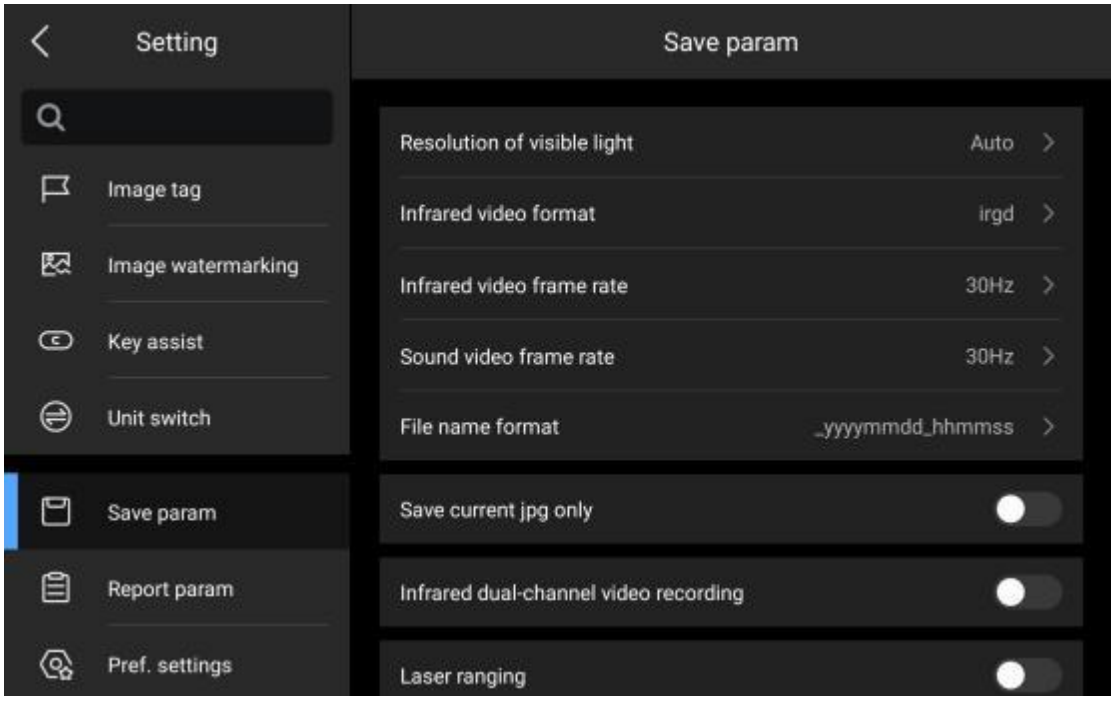
(3) Leakage unit: L/min, Cf/min;

(4) Currency unit: RMB, USD, EUR.



11.10. Save Parameters

Save and set the image parameters of the device.



11.10.1. Infrared video formats

Set the infrared video format: you can choose irgd/mp4.

irgd: video encoding format with temperature data;

mp4: Video encoding format without temperature data.

11.10.2. Video frame rate

Set the video frame rate.

The number of frames per second that a device captures and outputs .

11.10.3. Only save the current JPG photo

Only pictures in the current image mode are saved.

model	Image saved when closed	Images saved when opened
IR Mode	Infrared image + visible light image	Infrared image
MIF Mode	MIF image + visible light image	MIF Diagram
PIP Mode	PIP image + visible light image	PIP Diagram
AU Mode	AU Chart	AU Chart

11.10.4. File naming

Set up file naming conventions.

11.10.5. Laser Distance Measurement

When the laser ranging function is turned on, press or long press the "laser button" to emit a laser beam, start real-time ranging, and display the target

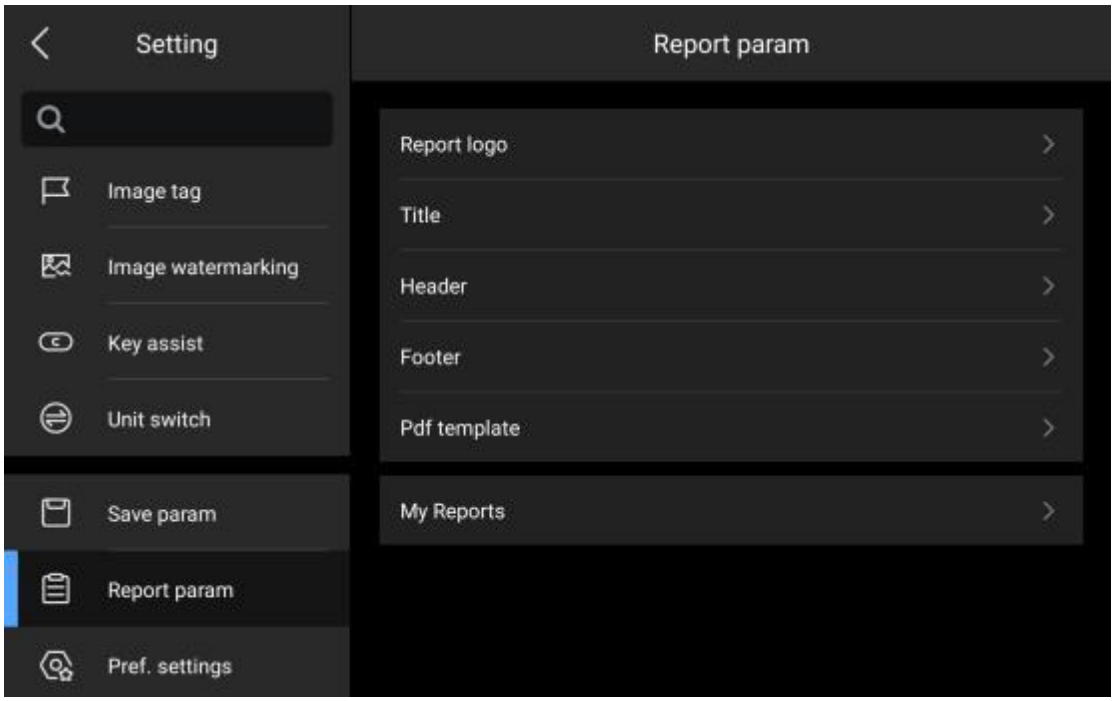
distance (if area calculation is turned on, the area of the target area is calculated in real time).



Long press the laser button to calculate the distance/area in real time. Press the camera button at this time and the corresponding distance / area data will be saved on the picture.

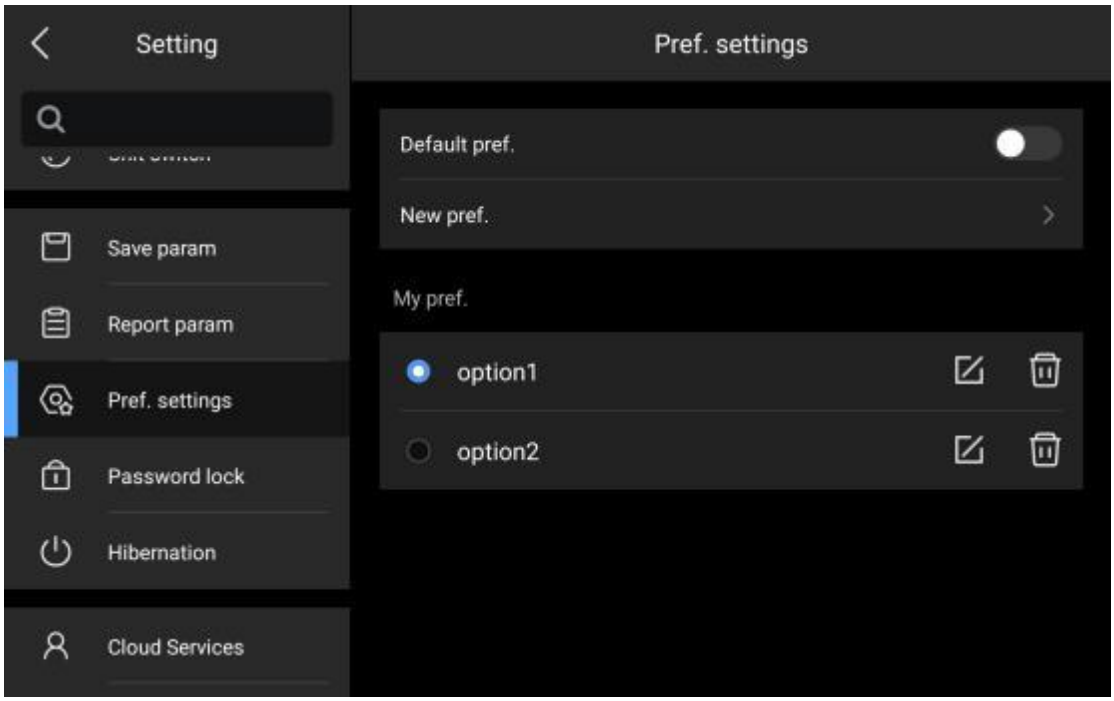
11.11. Report parameters

Set PDF report parameters .



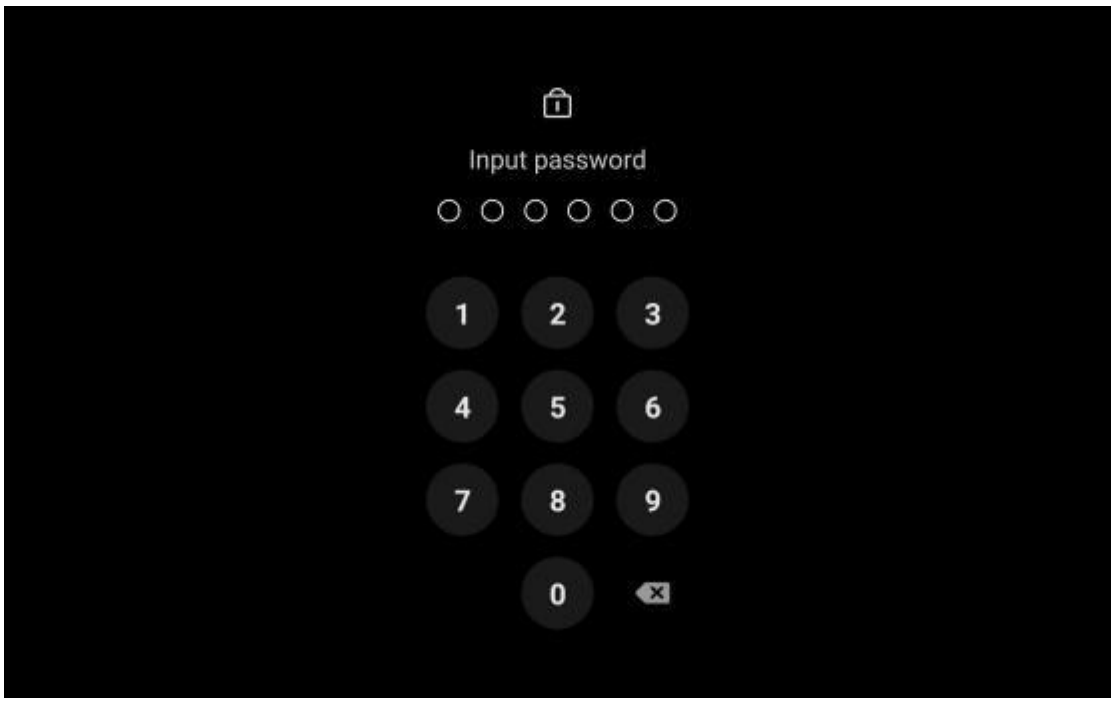
11.12. Preferences

Users can adjust device parameters as needed to optimize image quality and improve temperature measurement accuracy.



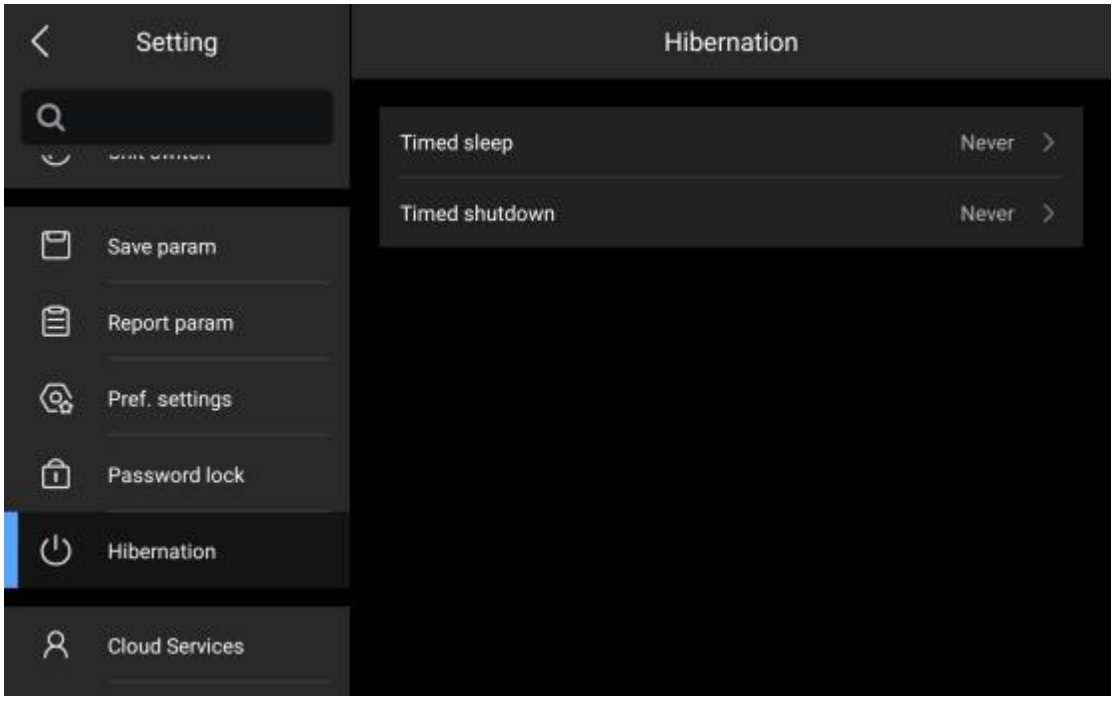
11.13. Password lock

Set a password to protect the device when it starts. If you forget the password, contact the device manufacturer.



11.14. Shutdown and hibernation

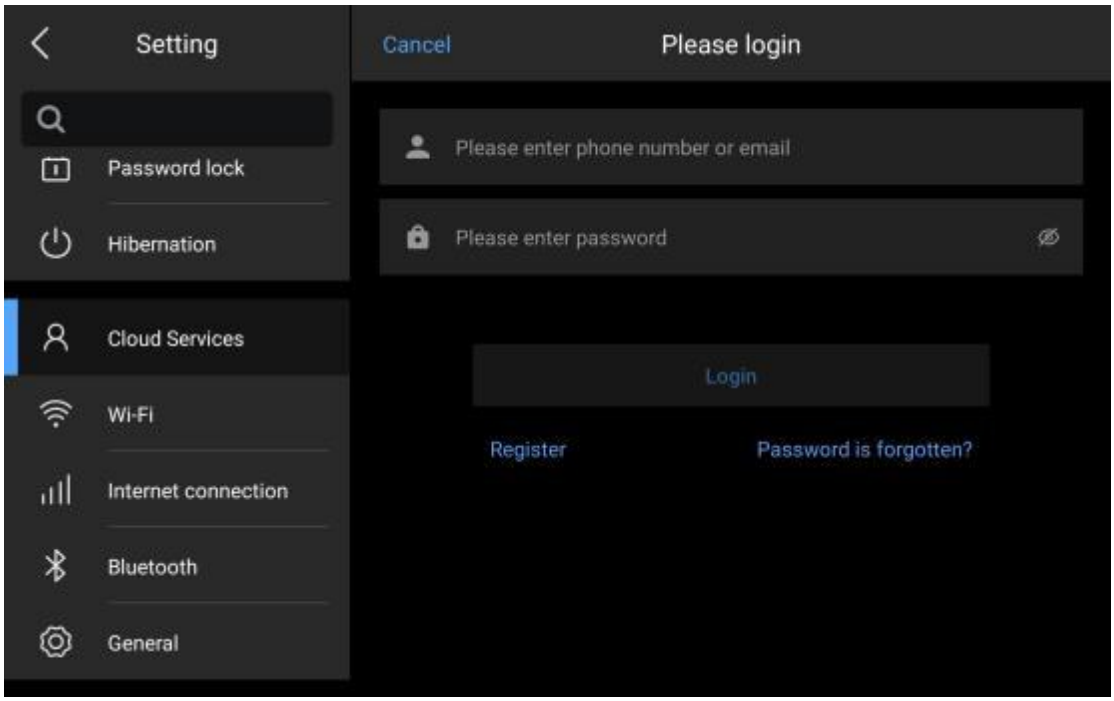
Set scheduled shutdown and sleep time .



11.15. Cloud Services

Used for image uploading, storage and sharing, users upload the images and videos they take to the cloud for access and management at any time.

After the device is connected to the Internet, you can register/log in to the " Cloud Service " and upload local images to the cloud .

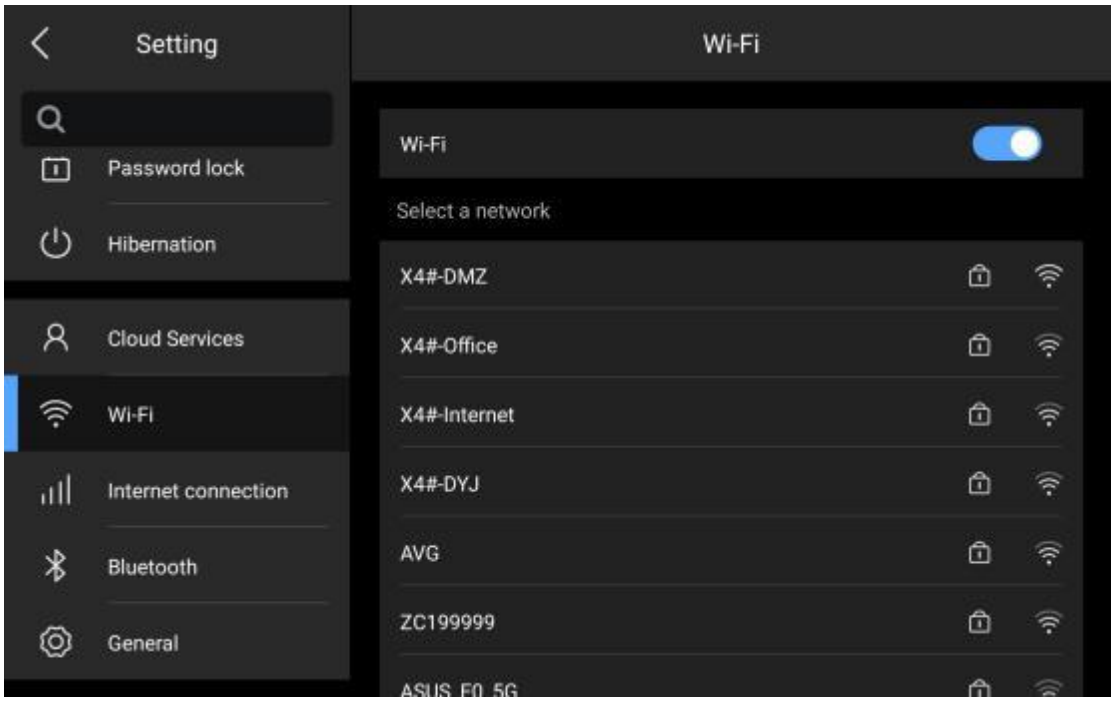


11.16. Wi-Fi

Connect the device to a wireless LAN via Wi-Fi, mainly for data transmission and OTA upgrades.

Turn on the WiFi switch, search for nearby networks , select the network you want to connect to, enter the password and connect.

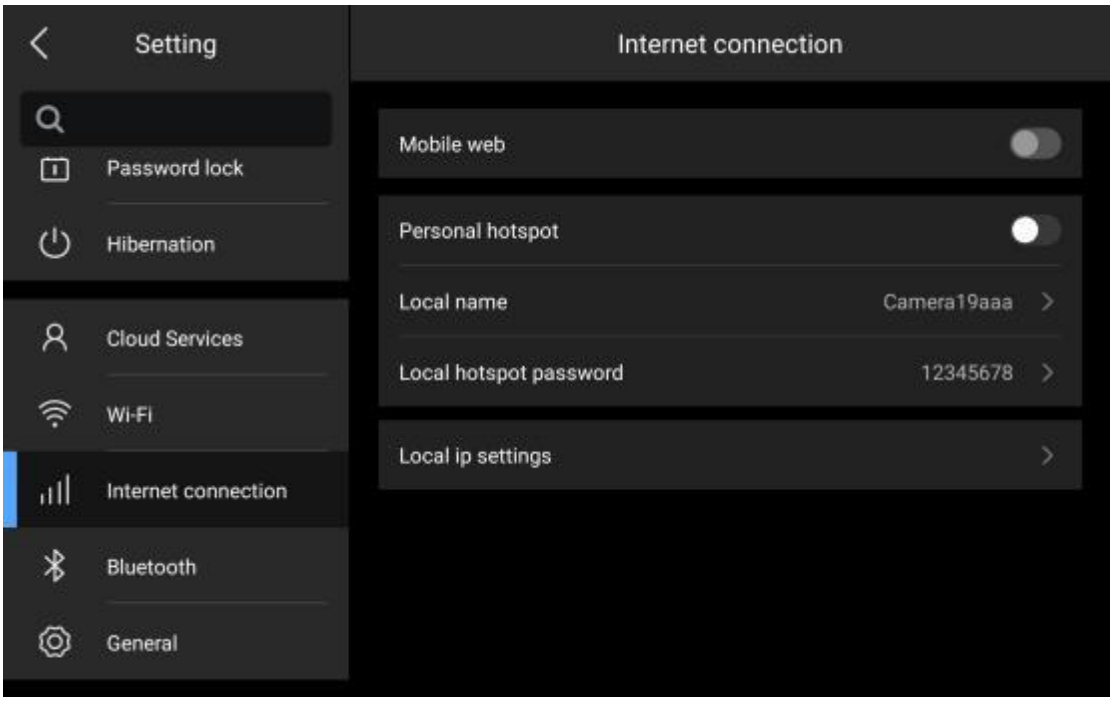
Note: To ensure reliable WiFi signal connection and stable data transmission, please try to ensure that the connection distance is within 10m and there are no obstacles (such as walls, etc.) .



11.17. Network connection

Through network connection, functions such as real-time video streaming, data transmission and OTA upgrade can be realized.

(1) Mobile network (supported by some models) : External 4G mobile network.



(2) Personal hotspot: Set the device hotspot name and password to enable mobile phone and PC analysis software to remotely obtain device images.

The following describes how to connect the device to the real-time screen of the mobile phone/PC analysis software:

Method 1: AP connection

1) Turn on the "AP" switch;
2) Connect your mobile phone/computer (TCP/IP properties on the computer must be set to "Auto-acquire") to the hotspot of this device;
3) the mobile phone / PC analysis software to complete video streaming and wireless connection.

Method 2: LAN connection

1) Set the device IP and gateway information to ensure that the device and the computer are in the same network environment, such as the device IP address is 172.16.14.216, the DNS server address is 202.103.24.68, the computer IP address is 172.16.14.230, and the DNS is 202.103.24.68;

2) Connect the device to the computer with an RJ45 network cable;

3) Click "Connect Device" on the PC analysis software and select "LAN" to load to complete video streaming and wireless connection.

Note: IP addresses cannot be set in the 192.168.42.xxx network segment.

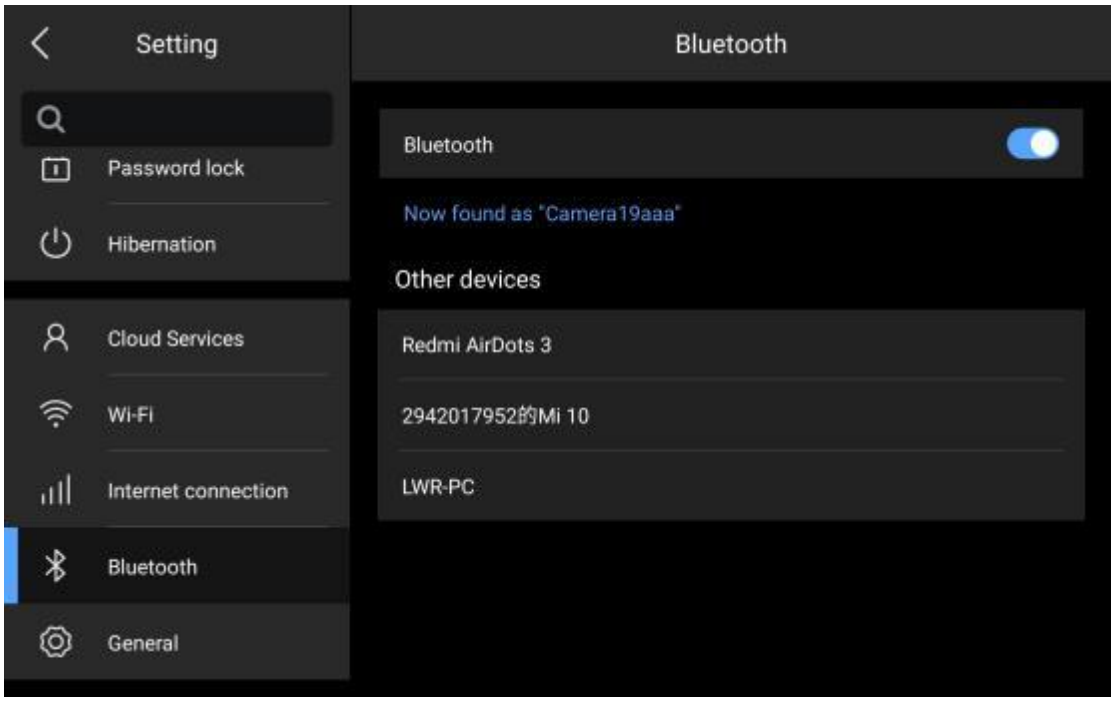
11.18. Bluetooth

After the Bluetooth headset is connected to the device, it supports voice annotation of the image, and can also transfer images via Bluetooth after connecting to the device.

1) Turn on the Bluetooth headset and follow the device pairing steps to enter pairing mode;

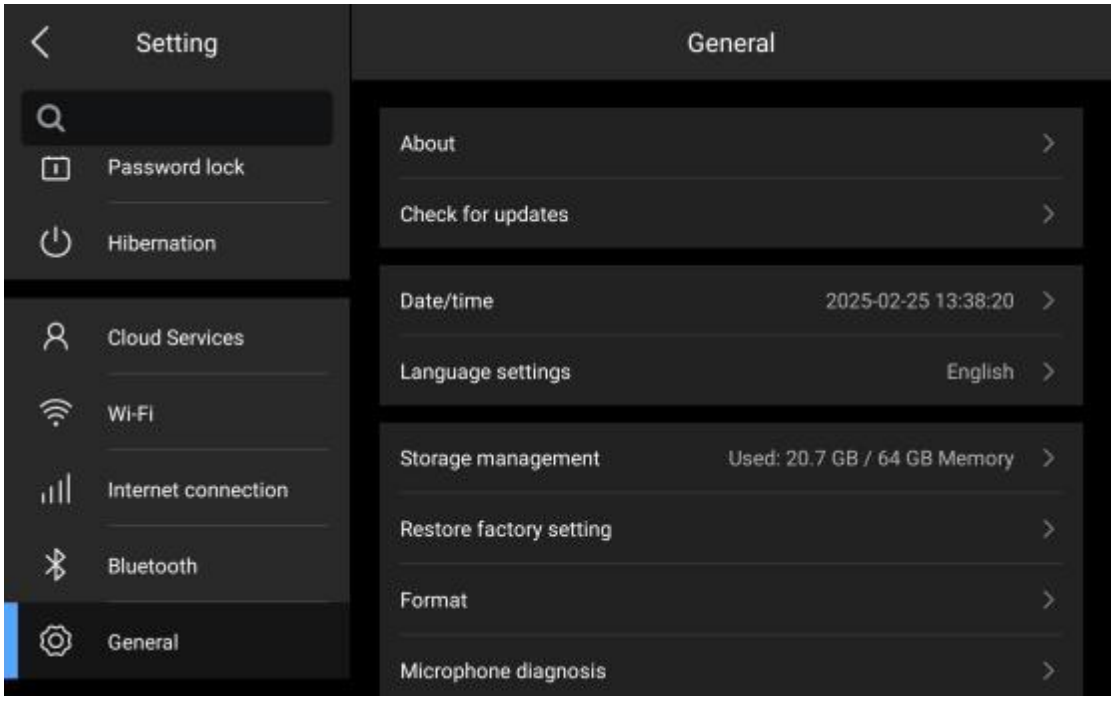
2) Turn on the Bluetooth switch, the system will automatically search for Bluetooth devices, and select the Bluetooth headset in the device list for pairing .

3) Once pairing is complete, the headset will attempt to reconnect each time it is turned on.



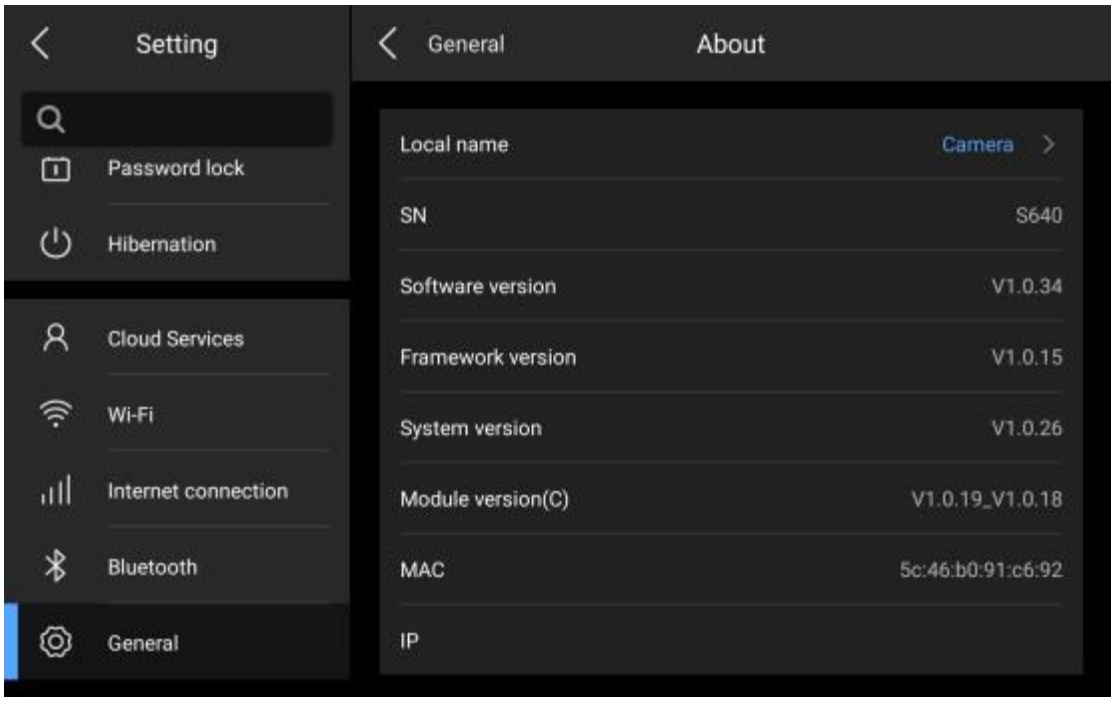
11.19. General settings

Contains information such as device software version and SN, and supports changing language, time and date, storage path, and other information.



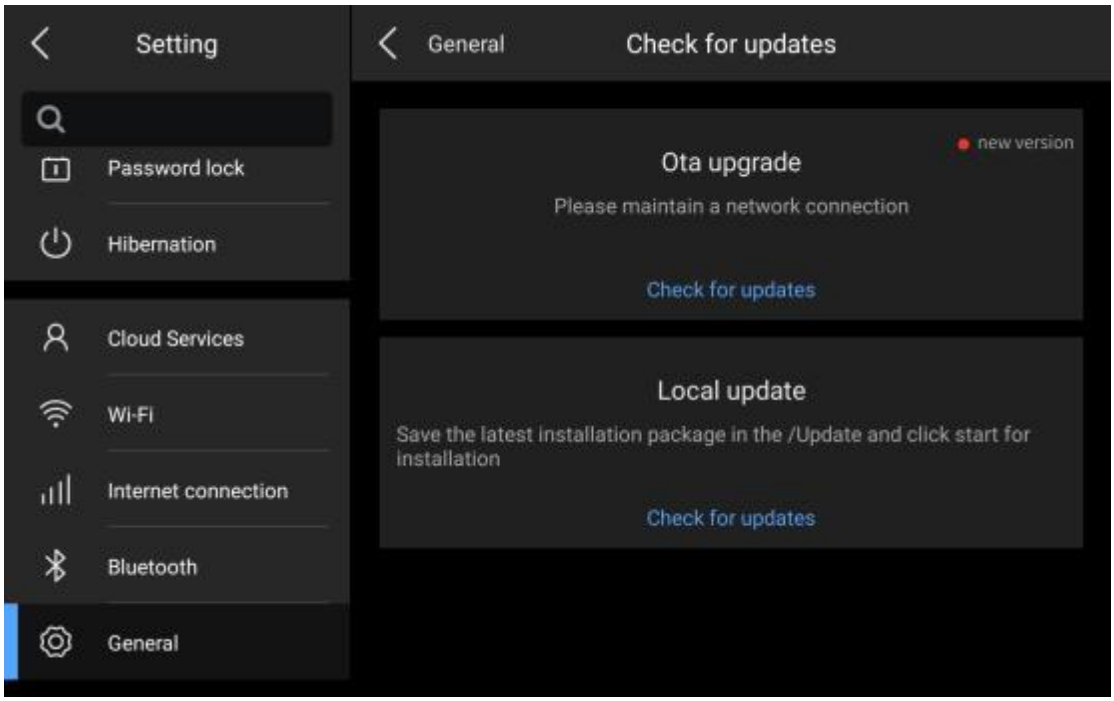
11.19.1. About this machine

Check the device version information and modify the device name.



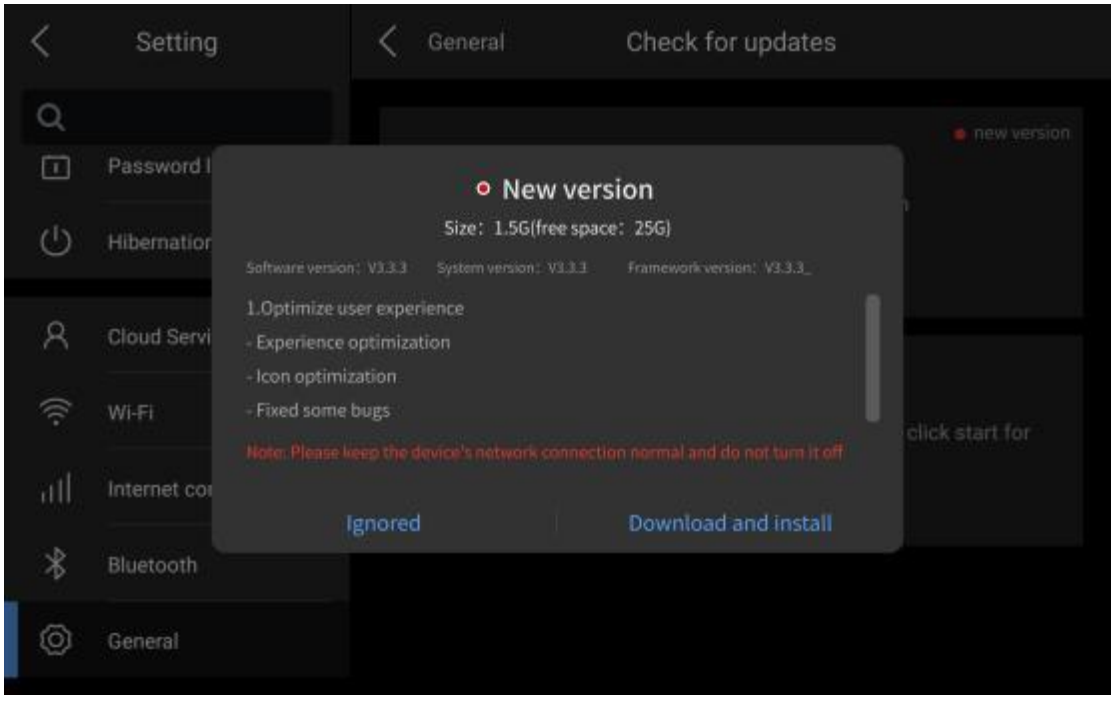
11.19.2. Check for updates

Check the device version information and support OTA upgrade and local upgrade.



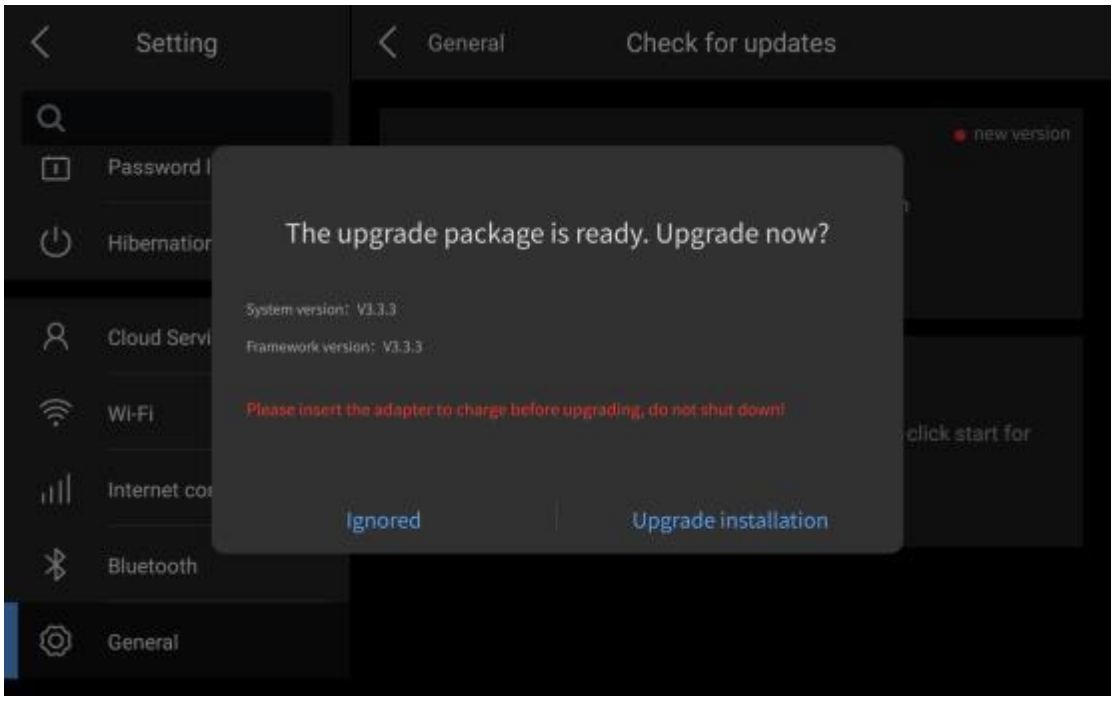
OTA Update

After the device is connected to the Internet, click "Check for Updates" to detect the latest upgrade package, click " Download and Install ", and restart the device after the upgrade is complete to upgrade to the latest version.



Local upgrade

Place the upgrade package in the /GCamera/Update directory, click " Check for Updates ", and when the latest upgrade package is detected, click "Upgrade and Install ". After the upgrade is complete, restart the device to upgrade to the latest version.



Note: OTA upgrades require an unobstructed network and sufficient battery power. If you have any questions during the upgrade process, please contact the device manufacturer in a timely manner .

11.19.3. Date and Time

Set the system date and time. "Automatic update" requires automatic synchronization after connecting to the Internet.

11.19.4. language

Set the language .

11.19.5. storage

Displays the capacity of the internal storage device and the information of the external SD card. Users can customize the storage options.

Note: Due to software compatibility issues, it is not possible to adapt to all brands of SD cards on the market. It is recommended to use the SD card that comes with the device .

11.19.6. Factory Reset

Restore the machine to factory settings. Note: Restoring the machine to factory settings will permanently delete all images and other data, so please operate with caution.

11.19.7. format

Delete all pictures, videos and other files currently saved on the device.

Note: Formatting will permanently delete all images and other data, so please operate with caution.

11.19.8. Synchronize Data

If you cannot view data after remote copying, file deletion, or SD card cross-use, you can restore the data by synchronizing the data.

11.19.9. Lens recognition

Automatically identify the lens information installed on the current device.

12. Connecting with external devices

12.1. USB 2.0 to TYPE-C interface

This device can use a USB data cable to charge the device battery or connect to external devices.

① Charging the device battery

1） Open the USB port cover on the top of the thermal imager;

2） Use a USB data cable to connect the device and the power adapter.

② Connect with external devices to transfer files;

1） Open the USB port cover on the top of the thermal imager;

2） Use a USB cable to connect your device to your computer;

3） Open My Computer on the computer, and the list will show the device disk Camera;

4） Double-click to open the disk, enter the picture/video folder, and view/export the target picture/video;

The internal storage path is as follows:

- Image: ...Camera\Internal Shared Storage \DCIM\GCamera\SourceImage
- Video: ...Camera\Internal shared storage \DCIM\GCamera\SourceVideo

If you need to store the captured images in the SD card, please go to Settings-General-Storage Management, select SD card as the storage medium, and then save the captured images to the SD card. The SD card image storage path is as follows:

- Image: Camera\SDCard \DCIM\GCamera\SourceImage
- Video: Camera\ SD card \DCIM\GCamera\SourceVideo

12.2. Installing the memory card and lens

This device supports the use of SD cards. The images and videos you capture can be recorded on this device or on an SD card . Make sure the write-protect switch of the memory card is set to the upper position to allow writing/deleting.

12.2.1.Installing a Memory Card

1) Open the slot cover and insert the memory card until it clicks into place.

2) Close the slot cover.

12.2.2.Removing the memory card

1) Turn off the device power first, then open the slot cover. (Confirm that the indicator light is off, then open the slot cover)

2) Remove the memory card. To eject the memory card, gently push the memory card in and then release it.

3) Close the slot cover.

12.2.3.Installing the Optional Lens

1) Slide the lens locks to the sides to remove the lens .

2) Select the desired lens and install it into the lens slot .

Note: Please handle with care when using it to avoid direct collision and damage to the lens. When not in use, please place the extended lens in a safe box and store it properly.

13. appendix

13.1. Table of emissivity of common objects

Material	Emissivity
wood	0.85
water	0.96
brick	0.75
Stainless steel	0.14
adhesive tape	0.96
Aluminum Plate	0.09
Copper Plate	0.06
Black Aluminum	0.95
Human skin	0.98
asphalt	0.96
PVC	0.93
Black Paper	0.86

Polycarbonate	0.8
Concrete	0.97
Copper Oxide	0.78
cast iron	0.81
rust	0.8
plaster	0.75
paint	0.9
rubber	0.95
earth	0.93

13.2. Common Troubleshooting Guide

Fault phenomenon	reason	measure
Unable to turn on	Low battery	Recharge the battery before using it
	Bad battery contact	Remove the battery, put it back into the battery compartment and install it in place
	The external power plug is not plugged in properly	Unplug the power plug, reinsert and push until it clicks into place
The battery level indication deviates greatly from the actual usage	Battery drain	Replace the battery with a fully charged one
	Battery life has expired	Replace the battery with a new one
Infrared image is not clear	Not focusing	Manual focus or auto focus for a clear image
	The lens is fogged or contaminated	Use professional equipment to clean the lens
Visible light images are not clear	The environment is too dark	Take appropriate lighting measures
	There is water mist or pollution at the front of the visible light	Use professional equipment to clean the visible light front end

Inaccurate temperature measurement	No focus on target	Focus manually or automatically to make the image clear, then read the temperature.
	The temperature measurement related parameters are incorrectly set.	Change parameter settings, or directly restore default parameter values
	Longtime without non-uniformity correction	Set the custom button to compensation in the menu, press the custom physical button, hear the shutter sound, and perform a non-uniformity correction
	Measure temperature immediately after power on	To ensure the accuracy of temperature measurement, we recommend that you wait 5 to 10 minutes after turning on the thermal imager before starting temperature measurement.
	Longtime without calibration	To obtain accurate temperature measurement results, we recommend that you send your thermal imager for calibration once a year.

File cannot be stored	Insufficient storage space	Delete pictures and videos from the gallery
	SD card corruption	After unplugging the SD card and inserting it into the computer to format or replace the new SD card

Names and contents of hazardous substances in products						
Part Name	Hazardous substances					
	lead (Pb)	mercury (Hg)	cadmium (Cd)	Hexavalent cadmium (Cr6+)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Lens protection window	○	○	○	○	○	○
Infrared module	○	○	○	○	○	○
shutter	○	○	○	○	○	○
PCBA	○	○	○	○	○	○

This form is prepared in accordance with the provisions of SJ/T11364

○: Indicates that the content of the hazardous substance in all homogeneous materials of this component is below the limit required by GB/T 26572 .

×: Indicates that the content of the hazardous substance in at least one homogeneous material of the component exceeds the limit requirement specified in GB/T26572.



□Product name: Lens protection window
□Product name: infrared module
□Product name: Shutter
□Product Name: PCBA
□Environmental protection period: 10 years
is only valid when the product is used normally according to the instructions for use .